ARCHITECTURE WITHOUT REFERENCE

Exemplifying Non-Referential Architecture in a Log House

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THESIS TITLE:	ARCHITECTURE WITHOUT REFERENCE
MASTER PROGRAM:	ARCHITECTURE AND URBAN SPACE DESIGN
THESIS DIRECTION:	ARCHITECTURAL EXPERIMENTATION
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ABSTRACT

This thesis aims at understanding a recent contribution to the theoretical discourse on architectonic value in the seven principles of non-referential architecture and how architects can use them in the local context of Swedish log houses. Their ideator, Valerio Olgiati, has produced interesting examples of non-referential architecture, but none within a timber building tradition. Log houses are both similar and different to Olgiati's architecture, making them capable to inform the investigation.

Experience of space, Oneness, Newness, Construction, Contradiction, Order and Sensemaking are the seven non-referential principles which concretize how architectonic value is created by architects through Experience of space and their Sensemaking possibilities.

In the discourse on log houses, material culture is noted to be an enduring source of information on building traditions. It emphasizes that the physical elements of architecture contain value within themselves and that intersecting values can be stored in the built.

The methodology is centred around a non-referential workflow identified in the theory: architectural idea, programme adaptation, architectonic order and context adaptation. Initially, a theoretical investigation and inventory of the two types of architecture are made through studies of Olgiati's built non-referential architecture, Fabel Arkitektur's contemporary log houses and traditional log houses, as well as model studies and sketches.

The thesis results in a residential log house designed through the non-referential workflow corresponding to the seven principles. It challenges the concepts of Oneness and how extra-architectural values can become architectonic, offering a reading of the theory that increases its accessibility to architects operating in Sweden today.

The exploration shows that non-referential architecture can create architectonic value within a local building tradition, at least in log houses. The non-referential possibilities stretch beyond the similarities to Olgiati's architecture, namely through its potential for Oneness, ordering of the logs and historical connection. As such it has expanded the ideas of how architects can employ the seven principles in their non-referential practice and contributed to the discourse on architectonic value.

KEYWORDS

architectonic value, non-referential architecture, local building traditions, log house.

An important distinction to make when talking about the theory of non-referential architecture is that 'non-referential' does not imply the opposition or exclusion of working with references.

CONTENT

VOCABULARY

NON-REFERENTIAL : something that does not project or refer to something outside of itself when describing its own value. In the context of architecture, it does not mean limiting the use of references as part of the creative process. It simply means that references do not contribute to the meaning or value of architecture.

EXTRA-ARCHITECTURAL : everything that is not strictly architectonic, such as ideologies, art, building codes, etc.

EXPERIENCE OF SPACE : a basic physical and sensory experience known intuitively by all human beings. It is fundamental to the argument of the theory of non-referential architecture by being one of the two concepts that give value to architecture in the non-referential world. Olgiati's and Breitschmid's (2019) definition.

SENSEMAKING : the human act of making sense, of understanding. It is used in this thesis in the context of conceptualizing one's experience of space. It is an engagement of creativity and imagination. Alongside Experience of space it is one of the two concepts that give value to architecture in the non-referential world, and a principle in the theory. Olgiati's and Breitschmid's (2019) definition.

ONENESS : a quality of appearing like a totality. In architecture, this is achieved through physical attributes such as being made in one material and having similar measurements throughout. It is also one of the seven principles of non-referential architecture. Olgiati's and Breitschmid's (2019) definition.

CONTEXT : refers to the immediate physical surroundings, social situation and historical background.

MATERIAL CULTURE : artifacts and buildings through which an understanding of building traditions and historical facts can be learned.

SINGLE HOUSE : English translation of 'enkelstuga', a three-room cabin and common configuration of a traditional log house. Palmqvist's and Sjömar's (2006) translation.

PREFACE
PURPOSE & EXPLORATION

This thesis began with an interest in the intersection between architectural practice, theory and philosophy. As a graduating student of architecture with credits in aesthetics, I am intrigued by questions on why architects write theory and, perhaps more interestingly, why architecture needs theory. Do architects write to inspire others, to justify their work, to gain influence in the architectural discourse or to understand architects' unique contribution to the world?

While flipping through publications in the library, I came across a relatively new theory of architecture ideated by a practicing architect, which dives into the philosophical questions of the concept of built space. And so, in this master's thesis I aim to explore the junction between practice, theory and philosophy by looking at a contemporary theory of architecture, formulated by a practicing architect in collaboration with a theorist: *Non-Referential Architecture* ideated by Valerio Olgiati and written by Markus Breitschmid (2019).

INTRODUCING THE EXPLORATION

In the scope of this master's thesis, the architectural theory and philosophical ideas expressed by Valerio Olgiati and Markus Breitschmid (2019) in *Non-Referential Architecture* are examined within the context of the building tradition of log houses, local to places throughout Sweden. It seems Olgiati is the only architect who expressly design's non-referential architecture. As a result, there is an academic incentive to exemplifying the theory by someone else and in an architectural type different from the one favoured by Olgiati to examine its relevance to the discourse as a whole.

The log house is an interesting building tradition to test the theory of non-referentiality through, as it is both similar and different to the architecture produced by Olgiati. As is evident by looking at a few instances of his architecture and log houses, such as those identified as project references in this thesis, they share qualities of appearing massive and simple. A log house should thus be able to relate to the theory, making it an architectural type capable of informing an understanding of the theory and vice versa. However, the two are equal parts different as the latter is practical and tectonic where the first is abstract and geometric. This creates an interesting tension allowing for a critical exploration of the theory which could result in a broadened understanding of it and an investigation into whether or not the theory is capable of explaining qualities of architecture different from the ones favored by Olgiati.

A NEW & NON-REFERENTIAL REALITY

Valerio Olgiati and Markus Breitschmid (2019) position their ideas on architecture by claiming that architects of today find themselves operating in a time without a predominant ideology: a non-referential time. Since the ideas of modernism was formulated at the beginning of the 20th century there has been ideals for architects to relate their work to, either critically or positively (Breitschmid, 2008). That is not the case today.

The non-referential world is a world where there are no common rules or guidelines for architects to refer to (Breitschmid & Olgiati, 2019). Nor are there any institutions strong enough to unite society at any relevant scale. Instead, the non-referential argument is that people of today are raised in different political and cultural systems and create their unique understanding of the world through their own creativity. These new and polyvalent societal currents are, according to Olgiati and Breitschmid, the biggest challenge architects of today face.

A NEW ARCHITECTURAL THEORY

In 2018, the theory of non-referential architecture and its seven principles was published (Eisenman & Olgiati, 2023). Its aim is twofold: to present the non-referential aspects of the world today and give instructions on how to produce (non-referential) architecture in that world (Breitschmid & Olgiati, 2019). It constitutes a significant contribution on the turn from postmodernism to the digital era within architectural theory (Eisenman & Olgiati, 2023).

WORKING NON-REFERENTIALLY

Breitschmid and Olgiati (2019) argue that the task for architects of today is to understand how to create architecture that enables people to construct their own understanding of the world through their own creativity. Instead of pushing one's ideology in one's projects, architects contribute to society by creating spaces in which people can come to construct their own individual universes. This is done by offering an Experience of space which proceeds any intellectual interpretation. The Experience of space is a basic physical and sensory experience known intuitively by all human beings. It is essential to existence in a polyvalent, non-referential world.

AVOIDING THE EXTRA-ARCHITECTURAL

Creating architecture that offers an Experience of space means that architects create value in the formal attributes of their buildings and can no longer rely on extra-architectural referencing when justifying or explaining their work (Breitschmid & Olgiati, 2019). The extra-architectural entails everything that is not directly connected to the sensory experience of physical space, such as historical, artistic, social or contextual attributes and facts. The problem with working extra-architecturally is that it only engages the intellectual and not the sensory part of human perception (Eisenman & Olgiati, 2023). If architecture tries to advocate for its own relevance through the extra-architectural it cannot make an essential and meaningful impact since it would not offer an Experience of space without the need of intellectual interpretation. In other words, it cannot be architectonically valuable since people would react so differently towards it.

ARCHITECTONIC VALUE

The non-referential theory offers an explanation of architectonic value, meaning the unique contribution of architects to the world. By being non-referential, architecture is solely and always about the experience someone has when they encounter it (Breitschmid, 2008). As a result, non-referential architecture is purely architectonic, something that is beyond an embodiment or projection of thing or a purpose. Non-referential architecture is, in other words, valuable in of itself (Breitschmid & Olgiati, 2019).

SEVEN PRINCIPLES & A WORKFLOW

In the book *Non-Referential Architecture*, Olgiati and Breitschmid (2019) formulate seven principles of architectural design: Experience of space, Oneness, Newness, Construction, Contradiction, Order and Sensemaking (see pp. 14-17). The seven principles concrete the non-referential approach into concepts of design through which architects can work non-referentially. They offer a way for architects to operate in the polyvalent world of today.

In addition to the seven principles, this thesis follows a non-referential workflow identified in the forementioned book. The workflow starts with an architectural idea that moves through a programme adaptation, followed by the formulation of an architectonic order which leads to a design that is finally put through a context adaptation.

The seven principles of non-referential architecture are the theoretical foundation of this thesis. The non-referential workflow is the foundation of the methodology of the thesis.

1. Experience of space

2. Oneness

3. Newness

4. Construction

5. Contradiction

6. Order

7. Sensemaking

Architectural idea

Programme adaptation

Architectonic order

Context adaptation

Left: The seven principles of non-referential architecture, as ideated by Valerio Olgiati and written by Markus Breitschmid.
Middle: The non-referential workflow identified in Olgiati's and Breitschmid's theory.

Right: This photograph by Mikael Olsson captures Olgiati's defining architectonic traits through one of his buildings: Headquarters of Baloise Insurances Company in Basel. The architecture is abstract and geometric, in concrete and often featuring a house-looking pentagon shape. Where a new material is introduced, its colour is seemingly chosen to makes it blend into the predominant material.

F1: Headquarters of Baloise Insurances Company in Basel by Valerio Olgiati, 2021. (Olsson, n.d.).

THE SEVEN PRINCIPLES OF NON-REFERENTIAL ARCHITECTURE

THEORY

These are the seven principles of non-referential architecture, as ideated by Valerio Olgiati in *Non-Referential Architecture* and written by Markus Breitschmid (2019). In the following paragraphs, they are first presented in a shorter summary, followed by a longer explanation.

THE PRINCIPLES IN SHORT

(1) EXPERIENCE OF SPACE is a subjectively universal, basic human feeling people experience with all their senses and cognitive faculties as they encounter the physical entities of architecture.

Architecture is a **(2) ONENESS** where everything is deduced under a governing architectural idea; a continues thing that contain everything and every possibility.

Architecture is a philosophical thesis explored by the architect through its formal quality of **(3) NEWNESS** which is what will captivate and evoke the imagination of those who encounter it.

The **(4) CONSTRUCTION** of architecture should be decided by the architect to enhance the architectural idea, and formal intentions and qualities.

(5) CONTRADICTIONs in architecture are necessary, formal entities which have been utilized in a contradictory way. As people try to make sense of them, their creativity is triggered and they pendle between imagination and conceptualization.

The building elements of architecture are to be deductively organized by the architect, in an architectonic **(6) ORDER** to manifest the architectural idea.

Architecture earns its right to exist through its **(7) SENSEMAKING** abilities which are manifestation of sensory knowledge in physical entities.

PRINCIPLE 1: EXPERIENCE OF SPACE

Olgiati and Breitschmid (2019) describe the Experience of space as the feeling people have when they look at or enter a built space. It is a basic human feeling that we do not have to learn, that occurs in all of us and is felt with all the senses and cognitive faculties. What is particularly interesting about the Experience of space is that it is objective by means of being subjectively universal. People will have similar (albeit not completely identical) experiences of the same space regardless of their psychological apparatus and prior experiences. As a result, architects, who are the creators of the Experience of space, shape the experience of a particular space for all those who encounter it.

The architect must work intentionally when authoring an experience by being aware of what space they create and what its resulting experience will be (Breitschmid & Olgiati, 2019). That intention is formulated from an understanding of the society the architect operates within. If the architect neglects this responsibility or continues the wrongful narrative that architects have no power in the creation of Experience of space, visitors will have to try to interpret the ambiguity of the space by referring to things outside of the physical space and the building will no longer generate architectonic value. Intention is therefore important when creating space and it should be clear to the architect what space(s) they are creating before they start designing. The intention is to be deduced from the architectural idea (see p.37).

Another important part of creating space, in relation to provoking the desired Experience of space, is knowing what function and qualities a room will have before it is manifested (Breitschmid & Olgiati, 2019). In addition, the architect must pay attention to the room's relationship with every other room in the entire configuration of a building or space. Through this connection it is both its own entity and a single part of a whole.

To create a desirable Experience of space, each passing from one room to the next should offer an abrupt break in the spatial consonance of the movement (Breitschmid & Olgiati, 2019).

This will encourage creativity, curiosity, and ultimately space with Sensemaking qualities in which to relate one's own existence into. This should be the main goal of any piece of architecture. The Experience of space is created by the architect through material and form, resulting in all the physical qualities that make the room: floor, walls, ceiling, texture, material, light, columns, acoustics, shape etc. Finally, to create an Experience of space with the right amount of complexity, it is favorable to limit oneself to the use of one primary material.

PRINCIPLE 2: ONENESS

In a non-referential world, a building must be a totality. Through Oneness, it acts as an anchoring in a divided world (Breitschmid & Olgiati, 2019). Oneness is obtained by making every part and every element subject to an architectural idea unique to the building. An architectural idea should be form-generative and Sensemaking, meaning it implies a form and engages people's imagination. As such, architecture is created by dividing a whole (the idea) into parts and not by adding parts to create a whole. This method has, according to Olgiati and Breitschmid, always been superior in relation to the formal qualities of architecture but is particularly important in our non-referential world. Every piece of architecture must be a Oneness in its own right; a totality containing everything and every possibility.

In addition to following one architectural idea, a building's Oneness relies on its Sensemaking abilities (Breitschmid & Olgiati, 2019). Its manifestation in the physical dimension should relate to its possibility for a visitor to understand and construct their selves metaphysically.

A building should ideally be in one material, without joints and parts, every room being the same height, every wall and floor built in the same way and with the same thickness: all to increase Oneness. This enables it to be free from semantic connotations normally assigned to architecture and enable visitors to be with themselves and their own thoughts within its rooms. An implication of this is that it frees architecture from style-fixation.

PRINCIPLE 3: NEWNESS

The third principle dictates that every building must contain or present a quality of itself that is new to be Sensemaking by captivating and evoking the imagination of those who encounter it (Breitschmid & Olgiati, 2019). Newness is what makes a project independent and is of fundamental importance for architecture, and human life and transformation. Without it, a project is not architecture but simply a work of craft, utilitarian shelter or structure. These do not fulfill the social task of architecture. If architects stop striving towards Newness, they stop being creative.

Note that Newness should not be mistakenly attached to the fashionable or trendy (Breitschmid & Olgiati, 2019). On the contrary, Newness is a philosophical thesis the architect explores with their design. To create successful Newness, the architect must understand the society they operate within and find the right amount of Newness as too much will make the project inaccessible and bizarre. The quality of Newness must be built into the formal aspects of the project and may not be added on as an extra-architectural reference.

PRINCIPLE 4: CONSTRUCTION

It is possible, and according to Olgiati and Breitschmid (2019) favorable, to use only or essentially only one material in the Construction of architecture despite contemporary regulations. This will enhance its formal intention and qualities, the architectural idea and liberate it from sematic connotations. The choice of material falls on the architect and should be intentional by being governed by the architectural idea. Additionally, the choice should be influenced by economic and technical considerations. Masonry is, for example, a poor selection for a wavy structure. The use of many materials in Construction is a witness to the architect's lack of knowledge in structural matters and lack of architectural ideas. The authors argue that it is far from sophisticated to call one's building a timber building, for example, and still use metal joint.

The architect must be knowledgeable in the art of Construction to author their building (Breitschmid & Olgiati, 2019). They should make the structural concept clear in the early stages of design and it should impact the architectural order that follows the idea. Nothing but the exact dimensions should be left to engineers. Another reason for restricting the number of materials in Construction is the attributes of each material. They may work against each other or hinder each other's optimal uses.

PRINCIPLE 5: CONTRADICTION

Olgiati's and Breitschmid's (2019) fifth principle is Contradiction. Contradiction is not to be confused with contrast, which is something that is added to a building to create an opposite. Instead, Contradiction is something where two opposites exist at the same time without being fused together. It can consist of any traditional building element as long as said element is used in an innovative and creative way.

The authors offer an example to clarify this somewhat difficult concept. Seeing a staircase when entering a room makes one assume that there is something at the top of the staircase, such as a second floor (Breitschmid & Olgiati, 2019). But if another staircase is added next to the first, one's premade assumption on how the building is shaped is contradicted ("I see a staircase, therefore I know there is another floor in this building") and one needs to contemplate how the building is organized ("what staircase should I choose and why? Does it matter which one I choose?"). Note how this object is not an unnecessary one added to the room to create a contrast but a necessary element of the building that has been utilized in a contradictory way.

Another type of Contradiction is constructing a typical timber building in concrete, i.e. using a surprising material (Breitschmid & Olgiati, 2019). Contradictions stimulate the imagination and creativity of the user and are important for Newness and Sensemaking. Similarly to the Kantian description on how people make judgements on what is beautiful, a Contradiction offers an opportunity for people to alternate between imagination and conceptualization as they try to figure out how to make sense

of what they experience. The complexity must be balanced though, so that it does not become inaccessible and bizarre. Creating Contradictions is a testament to the creativity of the architect.

PRINCIPLE 6: ORDER

The architectonic Order is the system in which the building elements are organized to manifest the architectural idea (Breitschmid & Olgiati, 2019). In other words, it is through the Order that the idea is realized into physical entities in roofs, walls, floors etc. This is a deductive way of working and offers a logical way of reaching a conclusion through a thesis (the architectural idea). The opposite is commonly practiced in architecture schools today where students work conceptually to 'find' the shapes of their project inductively by searching for it incidentally or by conforming to restrictions and functional needs.

Working deductively from an architectural idea is the only way to create Order in the non-referential world as it entails working with intention and generates architectonic Orders that has the potential to be Sensemaking (Breitschmid & Olgiati, 2019). However, Olgiati and Breitschmid argue that the inductive method is useful after the architectonic Order has been set. That is when the architect can begin to test and search for solutions based on restrictions the project is under.

Inductive methods have been popularized lately through its association to participatory design (Breitschmid & Olgiati, 2019). Although it is inclusive, it too requires an architect to step in and make final decisions. So, the authors argue that authorship of the architect, i.e. the top-down approach is always needed to make the building make sense in the way the architect intended.

PRINCIPLE 7: SENSEMAKING

Sensemaking is a necessity for architecture (Breitschmid & Olgiati, 2019). Human beings have a natural desire to make sense of the basic experience of encountering rooms. This is perhaps the most important principle as it strives to answer why, where every other principle looks to how. It is through its Sensemaking abilities that a building receives its most basic right to exist. It is not easy to explain what Sensemaking entails, and it is even more challenging to do as non-referential architecture requires Newness, which means that there are no existing rules to follow for one's building to make sense. Yet architecture must offer a way for the visitor to be with their thoughts, to relate their selves and their lives into it. Only when a humanistic value is assigned to physical space does it become important in human experience and thus Sensemaking.

Contemporary stakeholders often believe Sensemaking is either impossible or only possible through extra-architectural additions, but architecture can offer a spatial order in which to relate life itself into (Breitschmid & Olgiati, 2019). A place for one to be with one's thought. This is the task of architecture and its way to contribute to the philosophical endeavor of searching for truth. Despite being principal for all architecture it manifests differently in every individual building.

The search for truth is difficult in a non-referential world that lacks for universal consensus (Breitschmid & Olgiati, 2019). It requires understanding, and in attempting to understand one must accept something as true. Note that this does not mean truth in a moral way, as that is not the task of non-referential architecture. The contribution of architects to this endeavor is through sparking people's creativity and imagination. By looking at the world formally instead of historically, one sees that architecture is Sensemaking through its manifestation of sensory knowledge in physical entities. These entities make the building Sensemaking, such as the order of a circular plan and a rounded roof could be Sensemaking by being a manifestation for the concept of heaven.

HOW TO: NON-REFERENTIAL ARCHITECTURE

THEORY

Continuing the theoretical description of the theory of non-referential architecture, the following paragraphs summarize it into short instructions for designing non-referentially.

Create space with intention by knowing what experience your spaces will offer (Breitschmid & Olgiati, 2019)

Know the function of the space you are creating before you start creating (Breitschmid & Olgiati, 2019).

Each space in the configuration of spaces you are creating should be separated in a manner that offers an abrupt break in the spatial consonance of movement for a visitor (Breitschmid & Olgiati, 2019).

Always start with one entirety and divide that into the parts you need to create your building, as opposed to putting parts together to create a whole (Breitschmid & Olgiati, 2019).

Strive towards using as few materials as possible, preferably only one (Breitschmid & Olgiati, 2019).

Try to limit the amount of joints in your design (Breitschmid & Olgiati, 2019).

Use the same room height throughout your building (Breitschmid & Olgiati, 2019).

Strive towards building the walls and floors in the same way throughout your building (Breitschmid & Olgiati, 2019).

Your projects should offer Sensemaking possibilities to those who encounter it. One way of creating Sensemaking possibilities is through Contradictions (Breitschmid & Olgiati, 2019).

Have knowledge of the society you operate within so your project does not become bizarre and inaccessible (Breitschmid & Olgiati, 2019).

Your project should add something new to the world, or present something in a new way. One way of creating Newness is through Contradictions (Breitschmid & Olgiati, 2019).

Do not confuse Newness with the fashionable or trendy (Breitschmid & Olgiati, 2019).

Use a Construction that consists of few, preferably one, material (Breitschmid & Olgiati, 2019).

An architectural idea should be the foundation of your design and govern every choice you make (Breitschmid & Olgiati, 2019).

An architectural idea should be form-generative and Sensemaking, meaning it implies a form and engages peoples imagination, such as ”a secluded garden” (Breitschmid & Olgiati 2019, p. 53).

After the architectural idea, economical and technical considerations should govern your choice of material for the Construction (Breitschmid & Olgiati, 2019).

Make your structural concept clear in the earliest stages of design (Breitschmid & Olgiati, 2019).

One way of creating Contradictions is by using a material in a type of Construction that typically consist of another (Breitschmid & Olgiati, 2019).

One way of creating Contradictions is by using a necessary component, such as a staircase, in a surprising way (Breitschmid & Olgiati, 2019).

A Contradiction should be created mindfully so it does not become bizarre (Breitschmid & Olgiati, 2019).

When you study a building non-referentially, you study it formally through its ordering system and preferably without knowing its history (Breitschmid & Olgiati, 2019).

Set the architectonic Order deductively from your architectural idea (Breitschmid & Olgiati, 2019).

Once the architectonic Order has been set you can start working inductively, testing different solutions and complying to restrictions (Breitschmid & Olgiati, 2019).

Be the author of your project, the one who makes intentional decisions, even in a participatory design process to ensure the project follows your architectural idea (Breitschmid & Olgiati, 2019).

Strive towards philosophical understanding through your design (Breitschmid & Olgiati, 2019). That is your contribution to the world as a designer. Work with Newness and Experience of Space to explore an understanding of the world.

Even though the non-referential world is without absolute truths, you must accept something as true in order to contribute with understanding of the world through your work (Breitschmid & Olgiati, 2019).

Architecture is about taking an architectural idea and dividing it until it becomes a building (Breitschmid, 2008).

Remember, the most important part of architecture is the idea and intention (Breitschmid, 2008).

A symmetrical building needs less adaptation to site, as it works the same no matter its placement in the world (Breitschmid, 2008).

Soley functional elements, such as entrances, are placed inductively after the deductive architectonic Order is set (Breitschmid, 2008).

In School at Paspels, Valerio Olgiati creates metaphysical illusions by working with proportions that makes the big building look small from afar (Breitschmid, 2008). The building loses its understandable dimension. This makes it Sensemaking.

Olgiati notes in his reading of Mies van der Rohe’s German Pavilion from 1929 that the thickness and materiality of the walls and columns generate illusions in the structural hierarchy (Breitschmid, 2008). The walls appear to be loadbearing but are simply part of the architectural Order and the columns appear too light to be loadbearing but are. This is a Contradiction.

In the same reading, Olgiati notes that the use of rounded stones at the bottom of the still pool is a way of generating Contradictions as roundness in stones are traditionally related to water in movement (Breitschmid, 2008).

An architectural idea is the foundation of the non-referential workflow (Breitschmid & Olgiati). After the idea follows an adaption to programme, i.e. knowing the function of the spaces. Next is the architectonic order which is deduced from the idea. Lastly, contextual adaptation is done inductively from the project’s specific site.

In a formal study of the Temple of Mitla, Breitschmid and Olgiati (2019) notes that entering a room diagonally and not from a main axis, enhances the spatial experience. This is the result of experiencing and not simply intellectualizing the differences in the room entered and the room left, as would not have been the case if one would enter in a centered entrance.

In the same study, Breitschmid and Olgiati (2019) argues that a directional room, for example a long and narrow room, has more spatial impact on the visitor as it appears to be outside of the center of the building.

PROJECT REFERENCES: VALERIO OLGIATI

THEORY & INVENTORY

In order to understand the notion of non-referential architecture, 2 of Olgiati's own projects are used as project references in this thesis: Pearling Site and House in Laax. The following are case studies performed with the intent of locating physical attributes that correspond with one or more of the seven principles. It constitutes a part of the inventory priming the design explorations to follow.

PEARLING SITE

(1) Experience of space, (2) Oneness, (6) Order & (7) Sensemaking: The roof is the architectural idea. It is formally tone-setting and Sensemaking as it engages imagination and organizes the space.

(1) Experience of space: Wind towers are an important function of the building in the hot climate of Bahrain. Proves that the architect is aware of the function and contextual needs.

(1) Experience of space & (2) Newness: Does not feel bizarre within its context - indicates a balanced level of Newness and societal knowledge.

(1) Experience of space & (2) Oneness: One dominating material (red-ish concrete) gives a balanced complexity for the experience and the appearance of being a Oneness.

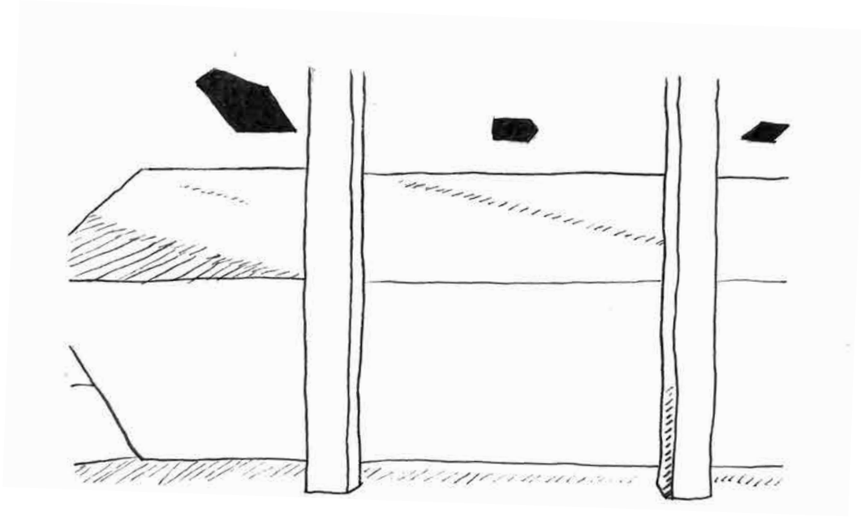
(1) Experience of space, (6) Order and (7) Sensemaking: Openings activate the experience of the roof. Additionally, it becomes Sensemaking as it is a physical manifestation of the sky.

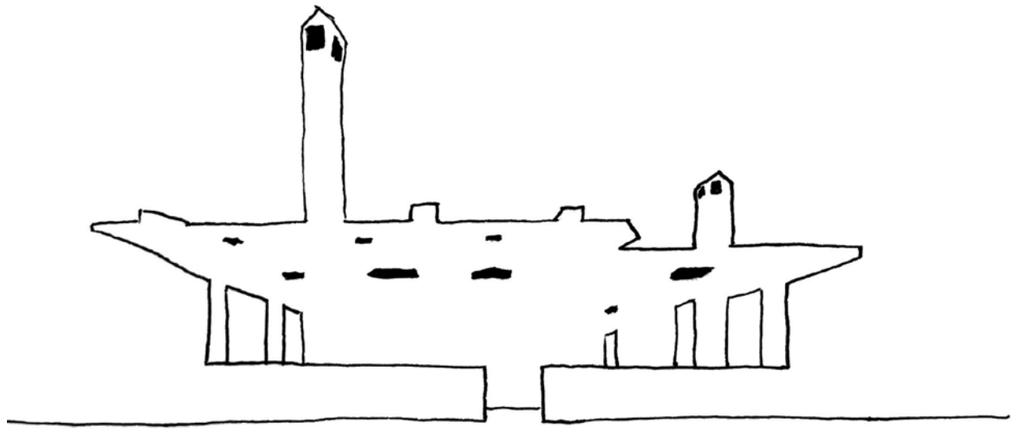
(1) Experience of space & (6) Order: Cooling shade organizes the space and fill an important function in this warm climate.

(1) Experience of space: Trailing light enhances the Experience of space and is a spatial and directional tool.

(1) Experience of space, (6) Order & (7) Sensemaking: Visitors move through a forest of columns, an Experience of space with a Sensemaking aspect as it provokes reflections of the metaphysical kind.

(4) Construction: Constructed in reinforced concrete and consists of few materials.





Top: Pearling Site by Valerio Olgiati. An interior view.
Bottom: Pearling Site by Valerio Olgiati. Its general volume and shape.

HOUSE IN LAAX

(6) Order: Local legislation only allowed for volumes over ground in opposite parts of the site (Olgiati, 2020).

Complying to contextual restrictions should be made after setting the architectonic Order deductively. But is it really plausible that Olgiati set the Order before complying to these restrictions? It seems reasonable to speculate that form-generative building code adaptation could make sense within the programme adaptation (second step) in the workflow (see pp. 36-37).

(1) Experience of space: Trailing light makes the skylight more visible. It makes the visitor curious and impacts their Experience of space, in addition, it alters the shape of the room.

(1) Experience of space & (2) Oneness: No cornice indicates Oneness as it makes joints less visible.

(1) Experience of space, (6) Order & (7) Sensemaking: A surprising and abrupt break in the spatial consonance between the two buildings through the 90 m corridor, and the spaces above and beneath ground.

(2) Oneness & (4) Construction: Every floor has the same height, every wall and slab the same Construction, like non-referential architecture should.

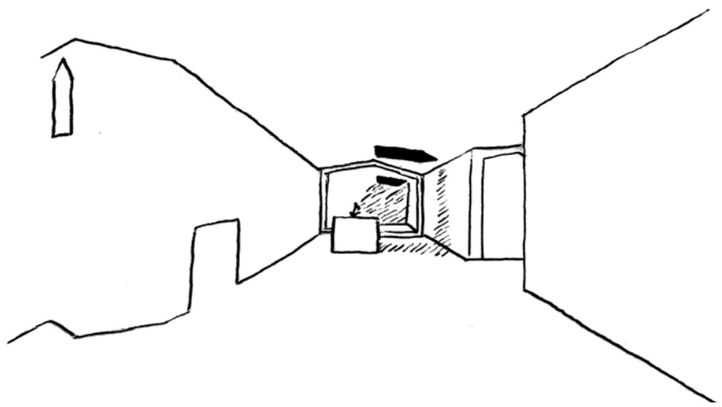
(1) Experience of space, (2) Oneness & (4) Construction: Made in (almost) only one material meaning a balanced complexity for the Experience of space.

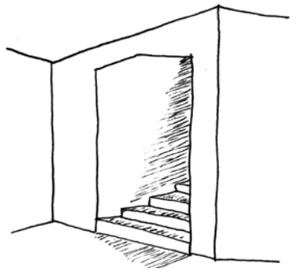
(1) Experience of space, (6) Order & (7) Sensemaking: Intentionally designed frames in between spaces. Tilted opening provides a glimpse of what comes next and creates curiosity. The shape of the top of the opening makes it stand out instead of blending in. This house-like shape often occurs in Olgiati's architecture. It is interesting how he seems to refer to the most recognizable shape of a house, the pitched roof, even though he claims to work non-referentially.

(1) Experience of space & (2) Oneness: Reads as a whole divided (or carved) into parts, given its materiality and shape.

(7) Sensemaking: Walking up towards the light makes sense of the image of rising up towards heaven.

(1) Experience of space & (7) Sensemaking: Seems the movement through the house offers a strong spatial and metaphysical experience. Perhaps this is a tool for physical and metaphysical Sensemaking: to offer a strong spatial experience?





Top: House in Laax by Valerio Olgiati. An interior view.
Middle: House in Laax by Valerio Olgiati. An opening to the staircase.
Bottom: House in Laax by Valerio Olgiati. The general volumes over and below ground.

PHILOSOPHY & NON-REFERENTIAL ARCHITECTURE
BACKGROUND & DISCOURSE

PHILOSOPHICAL ARGUMENTS

Olgiati and Breitschmid (2019) present the philosophical argument that architecture exists and offers shelter in both physical and metaphysical dimensions: as shelter from the elements and space for the self within existence. They claim that architectonic value originates from spaces that offer Sensemaking possibilities, i.e. that engage people's imagination as they try to contextualize their Experiences of space. Similar philosophical convictions are evident in the doctrine of phenomenology. Both accept the idea that our physical surroundings help us construct our selves.

Although the philosophical discourse on non-referentiality and its relation to phenomenology is not operative in this thesis, meaning it does not impact the design embodying the result of its investigation, it will become important in the discussion concluding the thesis (see pp. 75-77).

PHILOSOPHICAL PENOMENOLOGY

At the very beginning of the twentieth century, philosopher Edmund Husserl published a book that launched the 1900s' discourse on phenomenology (Hale, 2017). The ideas of phenomenology, as it was formulated by Husserl, challenged what had been the fundamental idea of philosophy since the time of Plato, namely that the mind and the body were separate. Husserl's ideas were continued by the likes of Martin Heidegger and Maurice Merleau-Ponty, who are responsible for two of the most important works within the discourse: Heidegger's Being and Time and Merleau-Ponty's Phenomenology of Perception, both published in English in 1962. As Merleau-Ponty framed the phenomenological account, our surroundings impact our lived experience. He argued that we perceive our surroundings with our entire body. Thus, the bodily senses are fundamental in our understanding and construction of our selves.

PHENOMENOLOGY ENTERS ARCHITECTURE

By 1960, phenomenology had gained a palpable stronghold in architecture (Hale, 2017). Through Heidegger, phenomenological ideas are evident in multiple account of architecture that offer alternative notions or critiques on modernism. Alvar Aalto, Gunnar Asplund, Frank Lloyd Wright and Louis Kahn have all produced architecture of this kind (Hill, 2007).

CRITIQUING PHENOMENOLOGY

Olgiati and Breitschmid (2019) position their theory in architectural phenomenology by offering several critiques on it. In essence, they argue that architects within the phenomenological discourse are constrained by their connection, albeit critical, to modernism. In short, phenomenology accounts are unable to fully embrace the heterogeneity of our time. Despite being exemplifications of the movement towards the purely architectonic and the discarding of the extra-architectural, only non-referential architecture is able to fully bend to the polyvalent world of today.

In his reading of Merleau-Ponty, Jonathan Hale (2017) notes that many architectural interpretations of phenomenology mistakenly assume that phenomenology supports the idea of the self as completely autonomous (as 'an isolated rational subject'). Instead, he argues that Merleau-Ponty meant that we are not only depended on but inseparable from our physical and cultural surroundings: the intersection between the bodily actions and environmental possibilities is where we construct our identities.

Olgiati and Breitschmid (2019) echo Hale (2017) by noting that if the individual cognitive faculties of the person having the experience are decisive on the perception of space, meaning perception happens only in the mind, architects would be powerless in the creation of the Experience of space. Their argument is that that is not true: architects are the authors of space and its subsequent experience. Thus, the architect actively impacts the Experience of space, possible even more so than the mind of the visitor herself.

POSSIBLE CRITIQUES ON NON-REFERENTIAL ARCHITECTURE
THEORY

USE OF REFERENCES

An important distinction to make when talking about the theory of non-referential architecture is that 'non-referential' does not imply the opposition or exclusion of working with references. Looking to references as means of inspiration and insight is an established tool in architectural schools and practices and is promoted within the theory.

The concept of 'non-referential' targets the justification or explanation of architecture. As an architect, you cannot explain your project by referring to extra-architectural values such as 'it fits into the context' (contextual value) or 'it solves this societal problem' (societal value). These are indeed values which carry importance, but they are not architectural values. The value of an architectural project derives from all that which impacts the sensory experience of rooms: the space the architect authors (Breitschmid & Olgiati, 2019).

Olgiati and Breitschmid (2019) states that architects should not stop studying other buildings. However, buildings should only be studied via its formal attributes, meaning everything that constitutes its physical self. As such, the most sufficient studies are performed without any knowledge on the buildings context, stakeholders, program etc. The finds of such a study should be implemented formally in order to add to the architectural value and not as semantic connotations or information.

IMPOSSIBILITY TO BE NON-REFERENTIAL

There is an impossibility embedded at the very center of the non-referential theory as it is impossible to be fully non-referential. A more accurate description of the approach is thus that the non-referential architect operates within the intersection of the ambition to work non-referentially and the understanding that such a thing will never be truly possible (Breitschmid, 2008). An example of this is the fact that Olgiati and Breitschmid (2019) make use of references when presenting their theory. These examples are presumingly given in order to help the reader understand their reasonings. In other words, Olgiati and Breitschmid seem to be aware of the power of referencing and thus the impossibility of completely abandoning the concept. However, simply because something is impossible to achieve in its totality or helpful in some instances does not mean that it is irrelevant to explore such an endeavour.

IGNORING SOCIAL & CONTEXTUAL VALUES

A possible critique of the theory of non-referential architecture is that it seems to imply that architecture operates in a contextual vacuum. That would mean that it is at risk of becoming insensitive to its surroundings and thus be subjected to the critique of how non-contextual architecture disturbs local traditions and communities. It is true that the authors of the theory separates contextual architecture and non-referential architecture (Breitschmid, 2008), but that does not mean that they argue that architecture and context have nothing to do with each other. On the contrary, architects working non-referentially must know the society, i.e. the context they operate within to avoid creating bizarre buildings that are inaccessible within the community (Breitschmid & Olgiati, 2019). This statement re-emerges in several of the seven principles, such as in relation to the level of Newness a building entails through the third principle. Additionally, the architect's knowledge of the societal context is what is guiding the architect's intentions, and these intentions are at the very centre of the architectural idea. Finally, contextual and social values of a project can be strengthen by decisions throughout the workflow which impacts the formal attributes and thus architectonic value of a buildning which the design implementation of this thesis will show.

By allowing architectural theory to isolate architectural value (and in doing so ignore other values) we enable a study on the unique contribution of architects to society both locally and at large. This thesis does not argue that architectonic value is superior to other values in any way. It simply chooses to focus on it.

LOG HOUSES & NON-REFERENTIALITY
THEORY

In the scope of this master's thesis, the architectural theory and philosophical ideas expressed by Valerio Olgiati and Markus Breitschmid (2019) in *Non-Referential Architecture* are examined within the context of the log house building tradition. The log house is a relevant building tradition to test the theory of non-referentiality through, as it is both similar and different to the architecture produced by the ideator of the theory, Valerio Olgiati. Perhaps the most obvious similarity is their use of one predominating material. This correspond to several principles such as (2) Oneness and (4) Construction, meaning the theory and building tradition will somehow inform each other. However, the two are equal parts different as the latter is practical, tectonic and in timber where the first is abstract, geometric and often in concrete. This creates an interesting tension allowing for a critical exploration of the theory.

MATERIAL CULTURE AND INFORMATION

Non-referential architecture cannot refer to historical frameworks in justifying its place in the world. Interestingly, there are arguments similar to those constituting the very foundation of the discourse on traditional and historically important building traditions such as log houses. Editors Lena Palmqvist and Peter Sjömar (2006) highlight the interpretative characteristics of history through their remarks on material culture. History, as we recognize it in academia, is limited by what has been written down, and by whom. Additionally, these documents seldom describe practices, even less so vernacular practices. An alternative source of information is material culture i.e. artifacts and buildings. These capture knowledge of building traditions by being the result of one. Put into the perspective of the non-referential take on architectonic value, the claims of Palmqvist and Sjömar (2006) emphasize the idea of physical aspects of architecture can contain value that stretches beyond the architectonic. It offers a take on how historical information can be stored in the built environment and transform into an architectonic attribute. A question that arise from that trail of though is whether or not historical references can be converted into non-referential attributes in contemporary architecture. This is something this thesis will explore through its aim of understanding how architects can use the theory in their practice.

NON-CONTEXTUALITY

This positioning of the exploration also offers a critique on the non-contextuality of non-referential architecture. By exemplifying it in a building tradition local to the Swedish context, a way of ensuring a more sympathetic approach to context is explored by making intentional decisions throughout the workflow.

LOG HOUSES
THEORY

A BUILDING TRADITION

Log houses are a building tradition in Sweden that has passed on through generations via craftsmen and practitioners (Palmqvist & Sjömar, 2006). They constitute most of the traditional building stock in Sweden, particularly so in areas close to coniferous forests and softwood. Its impact on the national building heritage is underlined in the Swedish language. The Swedish word for the practice is 'knuttimmer' (literally translated to 'knot-timber') stemming from the knotted link of the corners of these buildings. Today, 'knut' has come to describe corners of every building type no matter their material or construction.

CONSTRUCTION

Log houses consist of logs of timber that are stacked and joined together with scarf-joints both within and between walls (Steiger, 2007). In corners, cogging traditionally keeps the scarf-joints in place, making the construction resistant to tension (see illustrations p. 31). The logs of two intersecting walls are displaced in height by half their size, generating a knitted link at their intersection. Internal walls are typically joined with external walls in dovetail joints. A refined version of the technique uses mortise and tenon joints, and timber that has been squared and profiled, tightening the wall's cross section and width.

To prevent heat from escaping the building, the construction was traditionally made tight using a tool called 'dragjärn' or 'meja', which marks the exact shape of the underlying log (Palmqvist & Sjömar, 2006). By cutting a groove from the lines before allowing the log to sink into place, the weight of the construction and roof is concentrated on the edges of the groove. The edges are then pressed together and create a completely tight crease between itself and the underlying log.

The same technique is used on logs that have been chopped into squares, as was typical in the southern parts of Sweden (Palmqvist & Sjömar, 2006). Although the sides of the logs are chopped straight, the top and bottom bit remains curved, making the technique functionable. The curve at the top and bottom side of the logs creates a rounded waney edge. The waney edge makes the horizontal crease between two logs fully visible. When using oak instead of softwoods, squared logs where traditionally chopped straight on all four sides, making the grooves create creases without waney edges, and thus less visible.

FORM-GENERATIVE PLAN

The log construction technique is form-generative as it suggests a rectangular floor plan and, like any solid construction system, smaller openings (Steiger, 2007). The floorplan of traditional single houses ('enkelstuga' in Swedish) were organized around the fireplace (Palmqvist & Sjömar, 2006).

CONTEMPORARY BUILDING REQUIREMENTS

To reach contemporary building regulations, log constructions can be further insulated (Steiger, 2007). To avoid condensation, this should preferably be done externally. Today's market offers sandwich elements where planks constitute the outer layer, covering the insulation and log construction. However, if the width of wall is at least 8 inches (~200 mm), are combined with a minimum of 400 mm (~16 inches) insulation in the roof and a heat pump, a log house reach the insulation requirements of a permanent resident (Janols et.al, 2010).

PROJECT REFERENCES: LOG HOUSES
THEORY

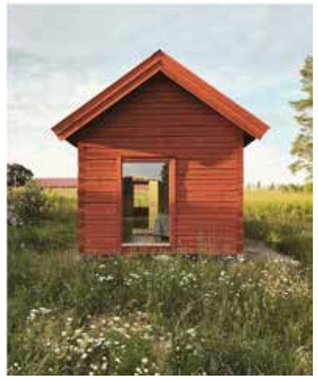
THEORY & PROJECT REFERENCES

The theoretical foundation for the log house building tradition is focused on two books detailing the knowledge of two practitioners: *Timmerknutar: Traditionell Knuttrimring* by Jan-Ove Jansson (2010) and *August Holmbergs Bygglära* edited by Lena Palmqvist & Peter Sjömar (2006).

Choosing these books as theoretical references despite them not being, as Jansson (2010) states in his preface, traditional academic studies is done intentionally. Building traditions are preserved via practice and so it seems necessary to rely on those who practice when studying such a craft. Naturally, this comes with risk of narrowing the understanding to only a limited number of persons. That does not pose a problem in the scope of this thesis since log houses are not the main academic focus of its investigation. When needed, these references are supported by Peter Sjömar's (1988) doctorial thesis on medieval wooden churches and vernacular corner-joint buildings.

In combination with the theoretical references, log houses are studied through historical buildings (material culture) and references from contemporary practice through projects by Fabel Arkitektur. Höghult, Timmerhuset and Stråtenbo offer insight into the contemporary practice of working with log houses. These projects will be used as case studies in the inventory as they offer a way to understand the tradition through the study of material culture.

LOG HOUSES BY FABEL ARKITEKTUR
THEORY



F2: Timmerhuset.
(FABEL arkitektur, n.d.).

F3: Timmerhuset, dovetail joints.
(FABEL arkitektur, n.d.).

Log constructions use only one material, which is preferable within the theory. This is prehaps its most obvious feature that is in line with non-referential architecture.

F4: Stråtenbo, interior textures.
(FABEL arkitektur, n.d.).

F5: Timmerhuset, exterior textures.
(FABEL arkitektur, n.d.).

The ceiling in Stråtenbo (F4) showcases its tectonics. It follows the simplicity of the projects intentions.

Textures impact the Experience of space. The decay of time creates textures – a physical, Sensemaking manifestation of history. Particularly so when placed next to a sleek and new element, as with the roof in Stråtenbo (F4) and by the windows in Timmerhuset (F5).

F6: Stråtenbo, small opening.
(FABEL arkitektur, n.d.).

F7: Timmerhuset, window.
(FABEL arkitektur, n.d.).

F8: Stråtenbo, insulated roof. (FABEL arkitektur, n.d.).

F9: Timmerhuset, interior. (FABEL arkitektur, n.d.).

When needing to insulate above the original roof, planks can be used externally as in Stråtenbo (F8). This enables the ceiling to show internally in the building.

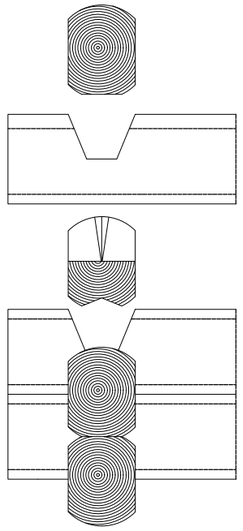
F10: Höghult. (Olsson, n.d.).

The entrance of Höghult (F10 & F11) sits deep into the facade, highlighting the envelope.

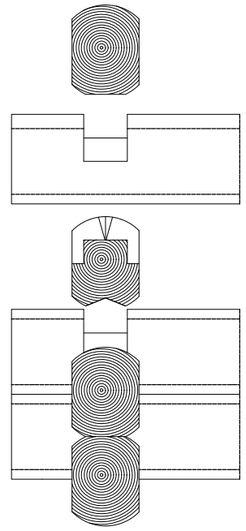
F11: Höghult, entrance. (Olsson, n.d.).

F12: Höghult, eaves. (Olsson, n.d.).

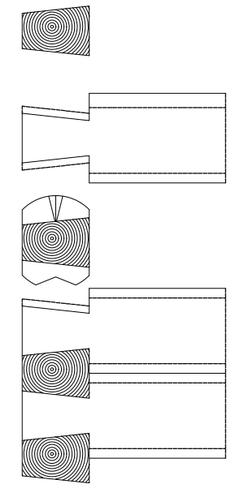
The eaves of Höghult (F12) are thin, carried by the truss which protrudes out from the volume.



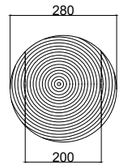
Single-notch knot.



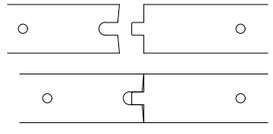
Dubbel-notch knot.



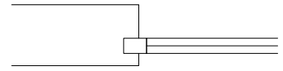
Dovetail joint.



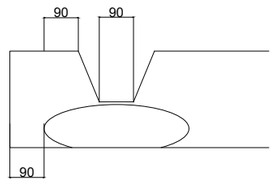
Dimensions.



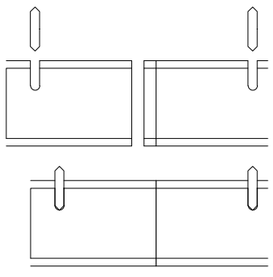
Plan: Joining two parallel logs.



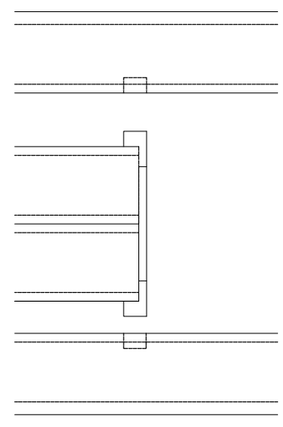
Plan: Door frames and windows.



Dimensions.

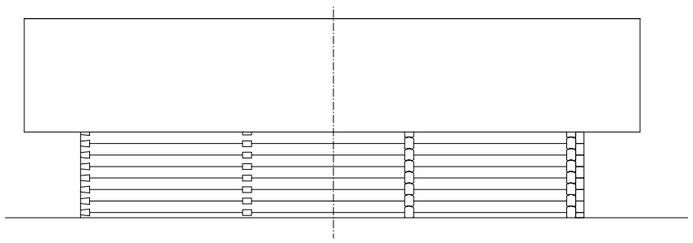


Elevation: Joining two parallel logs.



Elevation: Door frames and windows.

Illustrations based on August Holmberg's (Palmqvist & Sjömar, 2006) and Jan-Ove Jansson's (2010) descriptions. There are many different types of knots and technical solutions. Only a selected few are illustrated here.



Different appearances of corner and interior wall joints applied on a simple elevation of a building. As the non-referential theory promotes Oneness and architecture that appears to be without joints, it seems the dovetail joint is suitable for this investigation. It is the most discrete of the two, where the joints are as hidden as possible.

AIM
BACKGROUND & DISCOURSE

The aim of the thesis is to contribute to the understanding of the seven principles of non-referential architecture, the knowledge of how to work non-referentially and to offer a reading of theory that exemplifies a local adaptation within the context of Swedish log houses.

By positioning my interpretation of the theory in a building tradition with both similarities and differences to the practice of the only explicitly non-referential architect of today, Valerio Olgiati, I hope to critically explore and broaden the understanding of it. Specifically so in relation to Oneness and the intersection of architectonic versus extra-architectural values.

Hopefully, this exploration is a starting point to assist architects who want to explore non-referentiality, all the while contributing to the continued inclusion of the building tradition of log houses into contemporary theory and practice.

DELIMITATIONS
DELIMITATIONS

This thesis explores the possibilities of creating non-referential architecture. Although it highlights benefits of the theory in motivating its selection over others in Background & Discourse, it does not argue that it is superior to other theories beyond the scope of this exploration.

Non-Referential Architecture (Breitschmid & Oligati, 2019) contains a chapter on how to read architecture non-referentially (Genealogy of Architectonic Ordering Systems). That methodology will not be employed in the thesis to limit its complexity.

Since the theory of non-referential architecture suggests that the built environment should be studied formally, the historical presentation of log houses, as material culture and building tradition, will be limited to the greatest possible extent.

Although the design exploration is positioned in the log house building tradition, this is not a study of log houses per se. The theory on log houses is thus kept relatively short in relation to the research on non-referentiality.

Lastly, the design produced in the thesis exists in the field of architectural experimentation. Although the aim is to produce a project with enough realism to inform contemporary architectural practice, some details would have to be investigated further to achieve realism, such as the impact of moister in the bathroom.

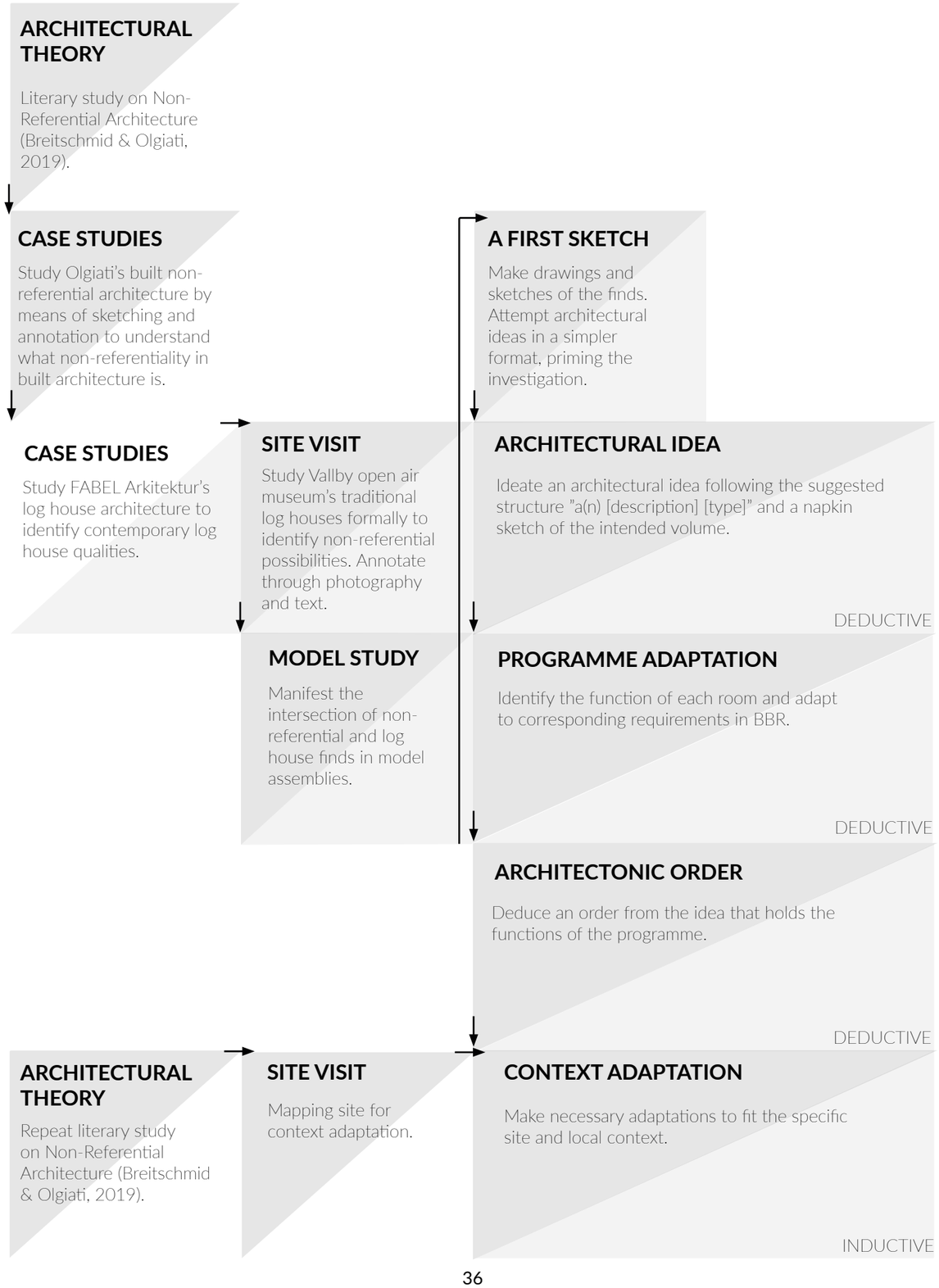
RESEARCH QUESTION
PURPOSE & EXPLORATION

How can architects employ the seven principles of non-referential architecture in their practice using local building traditions such as log houses?

METHOD
METHOD

Non-referential architecture

Log house building tradition



INVENTORY & THEORY

The method is centered around a four step workflow identified *Non-Referential Architecture* (Breitschmid & Olgiati, 2019) to ensure that the result is a product of working non-referentially. Prior to conducting the workflow, an inventory of qualities of non-referentiality, log houses and the intersection between the two is created through a site visit, case studies and a model study. The aim is to gather knowledge on how to operate in these fields as an architect. The theoretical study of the introductory chapter is conducted and iteratted throughout the entire process to let research and design inform eachother and continously deepen the understanding of theory through the architect's toolkit. Finally, a first sketch attempting to understand the concept of an architectural idea is undertaken before entering the workflow.

NON-REFERENTIAL WORKFLOW

These are the four steps of the non-referential workflow:

STEP 1. ARCHITECTURAL IDEA

It is the architectural idea, ideated by the architect, that is the starting point of the non-referential workflow and origin of architectural value in non-referential architecture. (Breitschmid & Olgiati, 2019). It is the foundation of all spatial qualities and deductive design decisions derive from it. As such, a bad idea cannot generate a good building. To be architectural, an idea must be Sensemaking and form-generative:

a. Form-generative means that the idea describes a formal intention (Breitschmid & Olgiati, 2019). Breitschmid and Olgiati gives form-generatives examples in “a secluded garden” (p. 53) and “a house with a public and a private room”, as well as non-form-generative examples in “an inexpensive house” (pp. 53-54), “a white building”, a “small building”, “a house in reinforced concrete”, “self-sufficient in regards to energy” or “a church” (p.54).

b. The Sensemaking aspect of a architectural idea is what liberates buildings from simple formalism (Breitschmid & Olgiati, 2019). It determines if the form-generative idea is worth perusing by stirring the imagination and imbuing the idea with an sense of discovery. The authors have intentionally given the concept of Sensemaking a defuse and open-ended definition as it would be impossible to encapsulate every instance of it under a closed definition.

An architectural idea should be expressed in short and concise sentence or phrase (Breitschmid & Olgiati, 2019). A suggested structure of an architectural idea is: ”a [description] [type]”.

At the very beginning of the process, assumingly in parallel with the formulation of the idea, an architect should author the structural concept of the building. An option here is to choose a structural concept connected to a local building tradition, as this thesis does.

STEP 2. PROGRAMME ADAPTATION

In the programme adaptation, the function of each room of the project is formulated as well as their requirements in size etc. Note that it is somewhat unclear if the fulfillment of building codes such as the Boverket's building regulations (BBR) is to fall under context adaptation or programme adaptation. It could be understood as both an deductive step that follows the architectural idea and an inductive one which does not. It seems to me, most intuitive to gain an understanding of these needs directly after finding the idea and initial shape of the building to work efficiently, and so I have.

STEP 3. ARCHITECTONIC ORDER

The idea is divided into spaces that become the order of the building. In this step, the volume and shapes of the building are designed. Although the order follows from the idea, the same idea can generate many different architectonic orders.

STEP 4. CONTEXT ADAPTATION

The final step offers an opening for strengthening the contextual values of a building. After following the architectural idea deductively through the programme adaptation and the architectonic order, an inductive context adaptation follows. Here, the architect adapts their design the to the local conditions of the site.

SITE VISIT: VALLBY OPEN AIR MUSEUM
INVENTORY

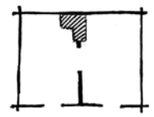
This aim of site visit is to deepen the understanding of the seven principles of non-referential architecture and how they may manifest in log houses.

Findings are documented with photography and annotations based on their correlation to the seven principles of non-referential architecture.

The work informed how buildings can be non-referential unintentionally, and it became evident that log houses contain many instances of non-referentiality. The typology deepened the understanding of the theory, but the theory did not deepen the understanding of the typology to any noticeable extent other than highlighting certain qualities over others.

One particularly interesting find in the exploration is how the passage of time, often defined as extra-architectural within the theory, is manifested into formal aspects of these buildings, in such things as a thatched roof, a painted interior and the sizes of floorboards. Could this mean that extra-architectural attributes can be made into architectural ones that carry architectonic value? Another find is the similarity and difference of logs and stones: both are massive but of different material. Is it possible that they have a connection through Oneness without being identical?

Log houses are form-generative, meaning it fulfils (at least) one of the two qualifications of an architectural idea.



Log houses use only one material, which is preferable within the theory. This is prehaps its most obvious feature that is in line with non-referentiality in architecture.

Stone and logs are different materials. However, they are similar by being massive and this implies that they contribute to Oneness without being one and the same. How could one create Oneness in more creative ways than limiting oneself to one material?

Using surprising materials impacts multiple principles, most noticeably Contradiction and Newness. What other material can be used in cogging? And what new types of joints can logs result in?

A Contradiction would be to change the order of the facade, making logs carry stone.

A distinct break in the Oneness of material in log houses is the traditional foundation of stones. Exchanging them with wood would increase Oneness and affect Newness through Contradiction.

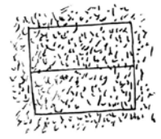
Through paintings on the walls, a layer in of history and stories has been made into an architectonic feature. Is this a tool in creating material culture and making other values intersect with architectonic? Would the same be true with wallpaper, or another layer of a room's skin?

The fireplace is central in the architectural Order of the building, heating and differs in materiality from the rest of the house. It has significance in both the Order and the Experience of space.

The edges of logs are architectonic building blocks. They organize spaces both as visual entities and as part of the architectonic order. How can these be used in a more non-referential way?

Cogging results in spaces for downpipes: an organisation that follows the form-generative architectural idea of log houses.

Sedum roofs are a manifestation of Oneness in relation to the ground. It suggests that the volume arose from the ground.



Using wooden gutters increase Oneness, especially in combination with panel facades.

Panel facades have multiple directions which can be turned and twisted to create Newness and Contradiction.

Working with and twisting the interplay between different materials creates Contradiction: adapting the stone to wood and not wood to stone.

Log houses naturally result in small openings, offering one type of spatial breaks when moving through rooms, which is a part in the Experience of space. What other ways are there to offer spatial breaks?

In one of the buildings, the differing sizes of floorboards tells us they are completed in different times, architecturally capturing history and maybe even enabling Sensemaking of the passage of time.

In thatching, layers of history are manifested physically by adding new layers of reed without removing the old: an example of Sensemaking of the passage of time through architecture.

MODEL STUDY
INVENTORY

In the model study, components of log houses are assembled in fragment models to experiment with how non-referential attributes can manifest intentionally in a new log house design.

Through this part of the inventory, the finds of the theoretical study, previous case studies and site visit are beginning to be narrowed down into the finds which will be operational in the design result of the thesis.

As the log house building tradition is a craftsmanship-oriented building technique, a first attempt of making models of it is a way of understanding the typology in a manner that previous explorations have not.

It would be a Contradiction to let the logs carry stone instead of vice versa.

The different textures of the northern and southern log house building tradition offers diversity within Oneness.

A Contradiction would be to use wood to create replacements of the stone. This increases Oneness.

The ridges are a potential spatial tools.

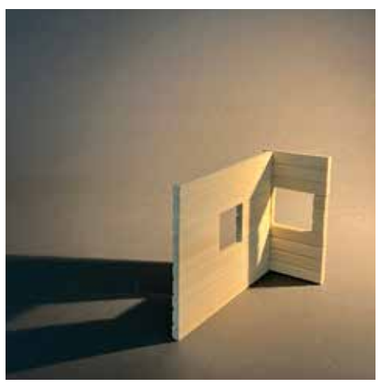
Eaves protect the facade and create shielded spaces between interior and exterior.

Could logs be cut to adapt to the shape of stone? It takes time to do, but it is a Contradiction as this is typically not done.

Traditionally, openings are kept small in log houses, but modern openings often needs to be larger for comfort. Where is the intersection between these two?

Seeing wood through the window increases Oneness as it gves the illusion of beeing deeper into a space of one material.

Log ends form lines on the facade illustrating the walls inside. Can they be used as decorative pieces and what does that do to the language of the building?



The two versions of the building traditions interacts differently with light, impacting the Experience of space.

A FIRST SKETCH
INVENTORY

The last exploration of the inventory is a first attempt on understanding how an architectural idea translates into volume, shape and materiality using finds from previous inventory.

The design result of the thesis is a villa. However, these sketches are performed in a simpler programme in order to focus on materiality and geometry without being restricted by function: a shelter.

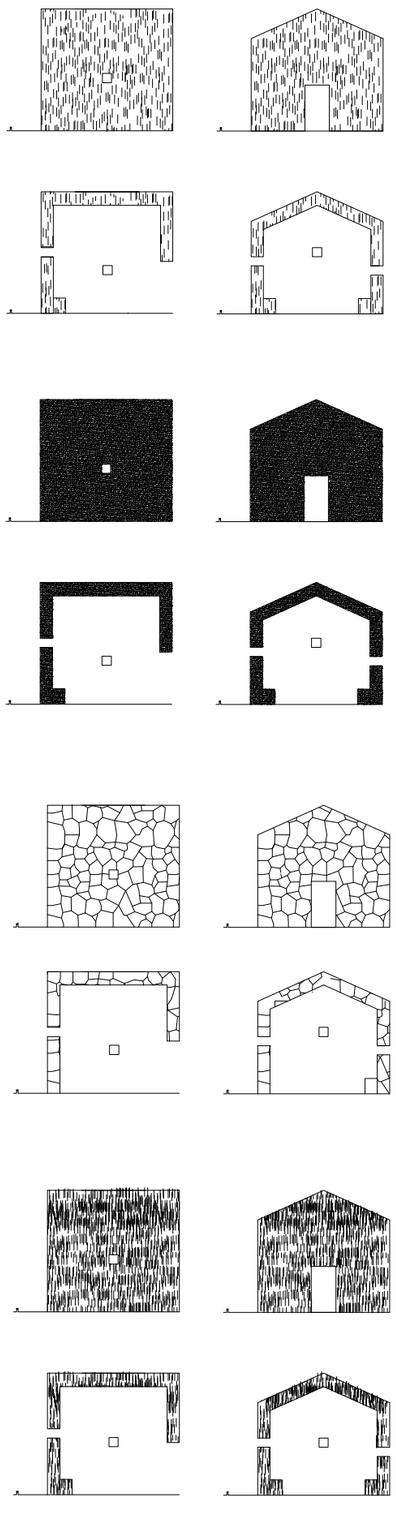
Two architectural ideas are tested in this exploration: 'an extroverted shelter' and 'a closed shelter'. By being each other's opposites they showcase how different ideas generate different design decisions.

It exemplifies how the idea affects design decisions such as openings, materials and how a visitor interacts with the building.

generous
light
dark
extroverted
social
introverted
private
public
open
closed
enveloping
expressive
meek
explorative

"a [description] [type]"

office
school
shelter
house
home
playground
shop
centre
square
park
garden
atelier
workshop

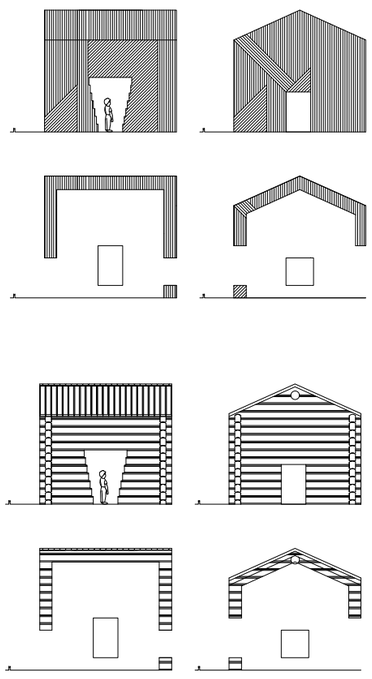


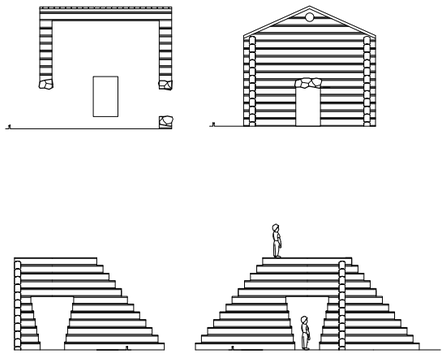
A few suggestions of architectural ideas.

A CLOSED SHELTER
A FIRST SKETCH: OPTION 1

In 'a closed shelter', the openings are small and positioned at different heights, as if they are trying to avoid being noticed. Practically, this displacement enables people of different heights to use them despite their size. The materials being used are those deriving from the finds of the inventory that corresponds with closeness and shyness the most: (from top) thatching, sedum, stones, and grass.

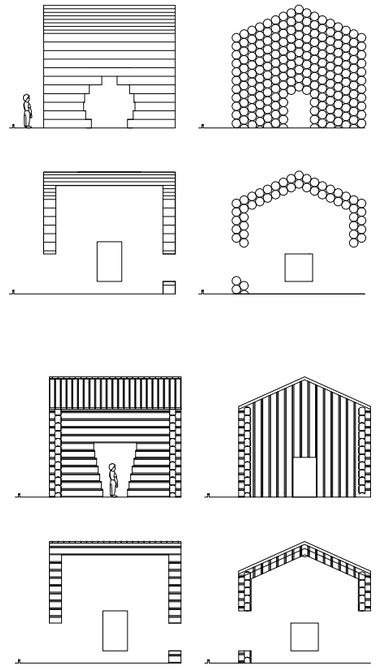
Top to bottom: thatching, sedum, stones, and grass.

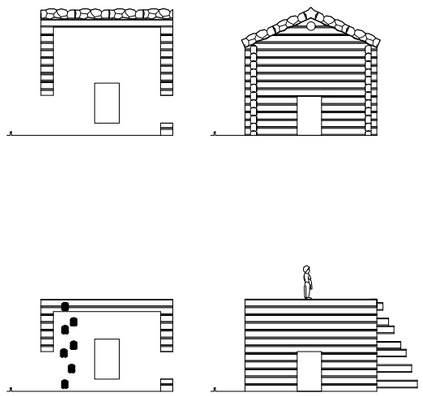




AN EXTROVERTED SHELTER
A FIRST SKETCH: OPTION 2

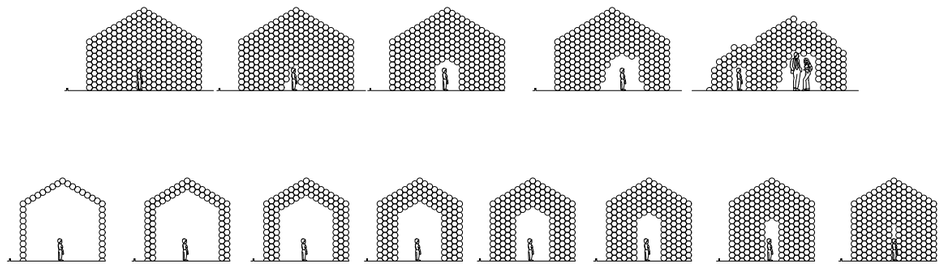
In 'an extroverted shelter' the openings are larger than in 'a closed shelter'. The visitor is forced to interact with the building by climbing, walking over, bending down when entering etc. Here, more expressive materials are used and the element of mixing materials by placing stones on top of logs are introduced.





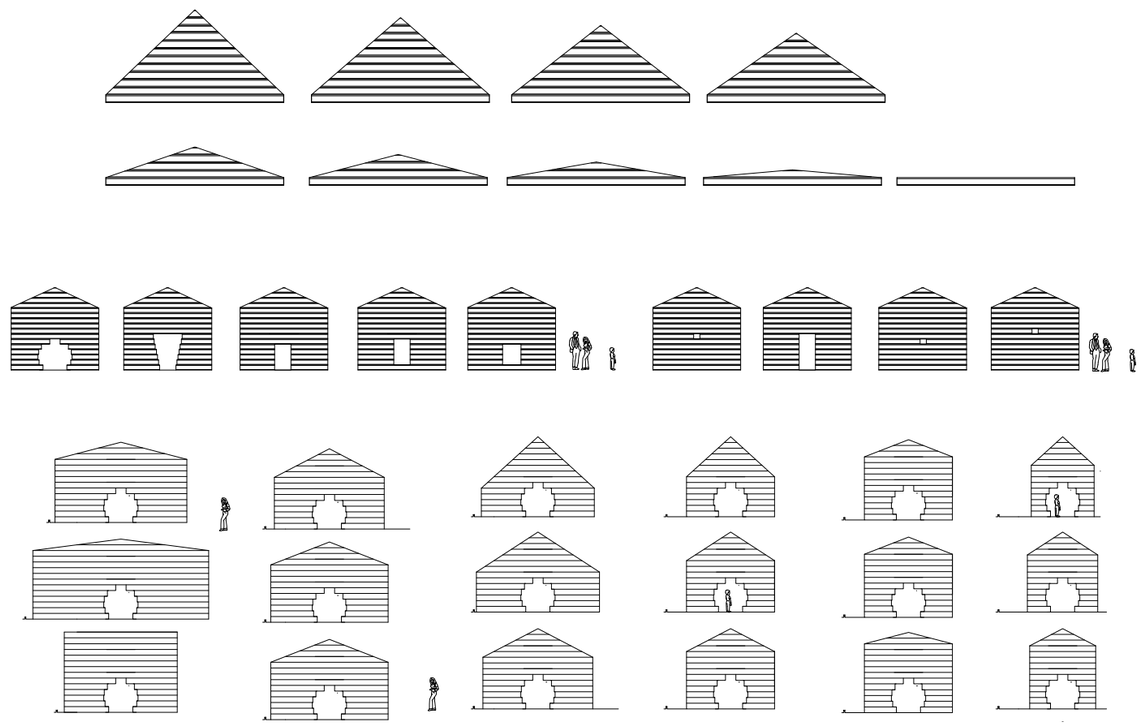
Top to bottom, left: planks, logs, uncut logs, vertical and horizontal logs.

Top to bottom, right: stones by the opening, logs as stairs, stones as roof over logs, and climbadle logs.



OTHER SHELTER SKETCHES
A FIRST SKETCH: OTHER

In addition to testing the architectural ideas, this exploration offered a possibility to test some geometric possibilities using logs.



NON-REFERENTIAL WORKFLOW
WORKFLOW & RESULT

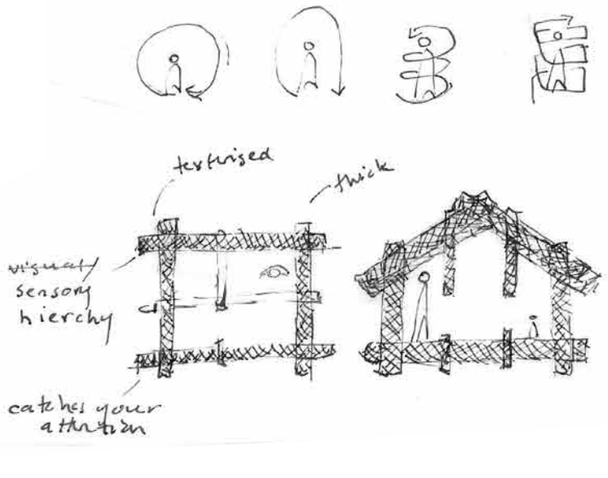
In this part of the thesis, a residential log house is designed through the non-referential workflow and the findings of the inventory.

generous
light
dark
extroverted
social
introverted
private
public
open
closed
enveloping
expressive
meek
explorative

”a [description] [type]”

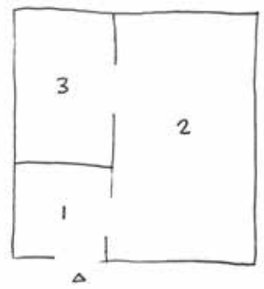
office
school
shelter
house
home
playground
shop
centre
square
park
garden
atelier
workshop

The first step of the non-referential workflow is to formulate an architectural idea. The idea is going to guide the majority of all decisions within the project and is as such very important. The architectural idea for the villa is ’an enveloping home’. It follows the structure described in the theory of the thesis (see left). As the architect of the villa, I start to imagine its shape when I hear it, meaning it is form-generative to me. Additionally, it is Sensemaking by triggering my creativity and my urge to explore it. As the architect, I am the only one who needs to see these shapes and feel this creativity in order for the idea to be successfully operative in the project.



The architectural idea is transformed into a napkin sketch, illustrating its form-generative nature.

The first sketches of the architectural idea 'an enveloping home'.



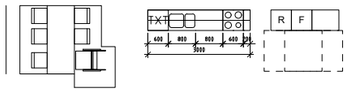
LOG HOUSE AND NON-REFERENTIALITY

CONNECTION THROUGH FORM-GENERATIVENESS

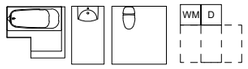
There is a connection between non-referential architecture and log houses through form-generativeness. The floor plan of a log house is form-generative as the corner joints results in orthogonal shapes. This means that it exemplifies one of two requirements for an architectural idea. However, from the examples of bad architectural ideas offered by Breitschmid and Olgiati (2019) (see p. 37), we know that the words 'log house' cannot be a part of the idea. But there is room in the workflow for configurational inspiration. Hence, the traditional floorplan of a log house, the 'enkelstuga' (single house) is the base and bridge between idea into the third step: the architectural order. But first, the project moves through a programme adaptation.

Configurational inspiration. An 'enkelstuga' (single house). The sketch is based in Soldattorpet, studied during the site visit to Vallby open air museum (pp. 38-42) and illustrations in Palmqvist and Sjömar (2006, p 34).

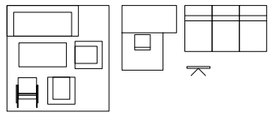
Kitchen



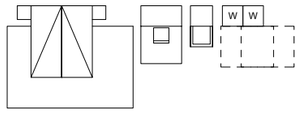
Bathroom



Livingroom



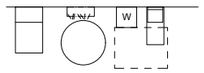
Bedroom



Storage

Passage

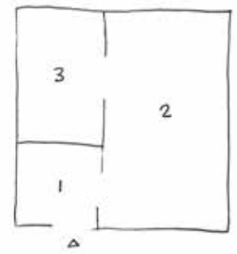
Entrance

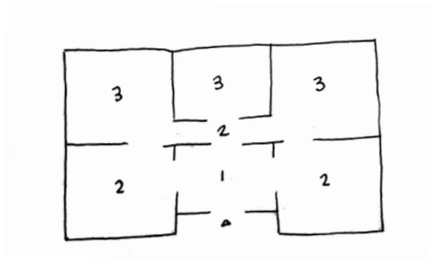


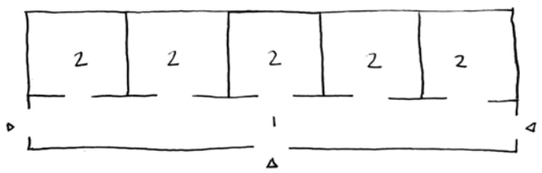
In the programme adaptation, the architect notes the functions needed in their project. For the villa, functions and the space they require according to the Swedish Standard building codes (via Bodin et.al, 2019) are as shown to the left.

It is somewhat unclear if an adaptation to building regulation is to fall under this or the final step of the workflow, context adaptation. The case study of Olgiati's House in Laax resulted in speculation that form-generative building code adaptation could make sense within the programme adaptation. It seems to me, most intuitive to do so as it mitigates the risk of having to change key elements of the design later in the process.

Functions and their required spaces for the villa.







AN ENVELOPING HOME
DIFFERENT OPTIONS

There are many ways of ordering an architectural idea into a functioning building. Here are two examples that both derive from the idea 'an enveloping home' and the configuration of a single house.

Option 1 highlights the envelope with an indented entrance and orders the rooms in a plan that allows for circling within the building.

Option 2 offers a narrow and long corridor, a shape which Breitschmid and Olgiati (2019) argues the visitor aware of the space around them (see p. 19), and squared rooms which envelops the visitor evenly. The latter, option 2, is continued and developed into a complete, albeit site-less design in this third step of the workflow.

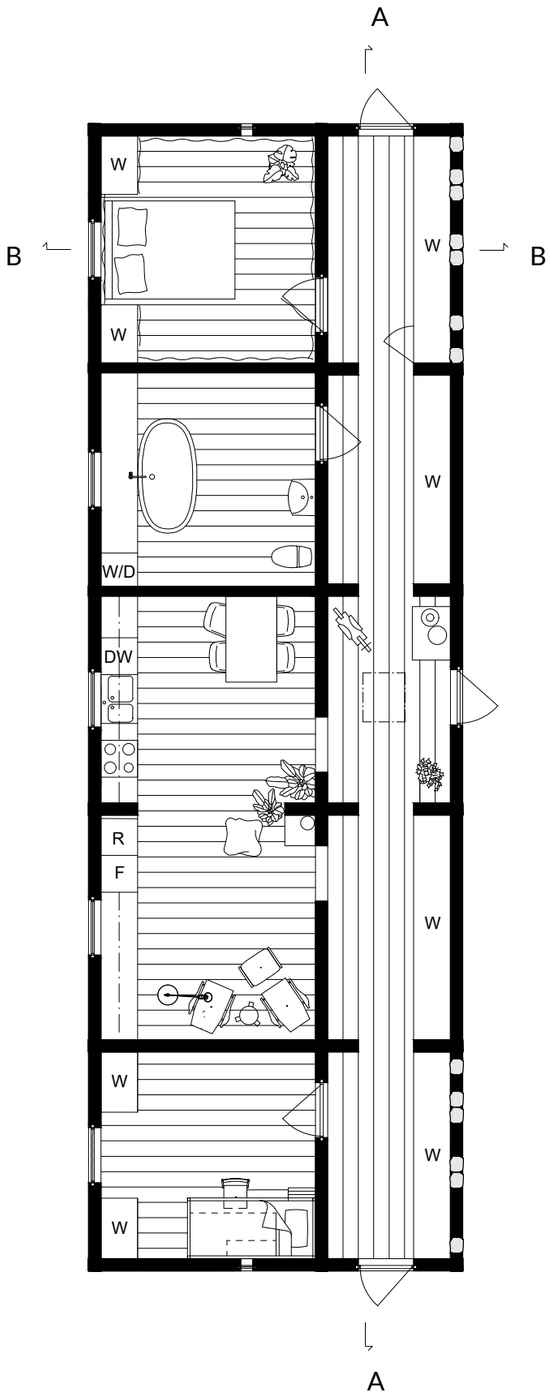
Top: Configurational inspiration: the single house.
Middle: Architectonic order 'an enveloping home' option 1.
Bottom: Architectonic order 'an enveloping home' option 2.

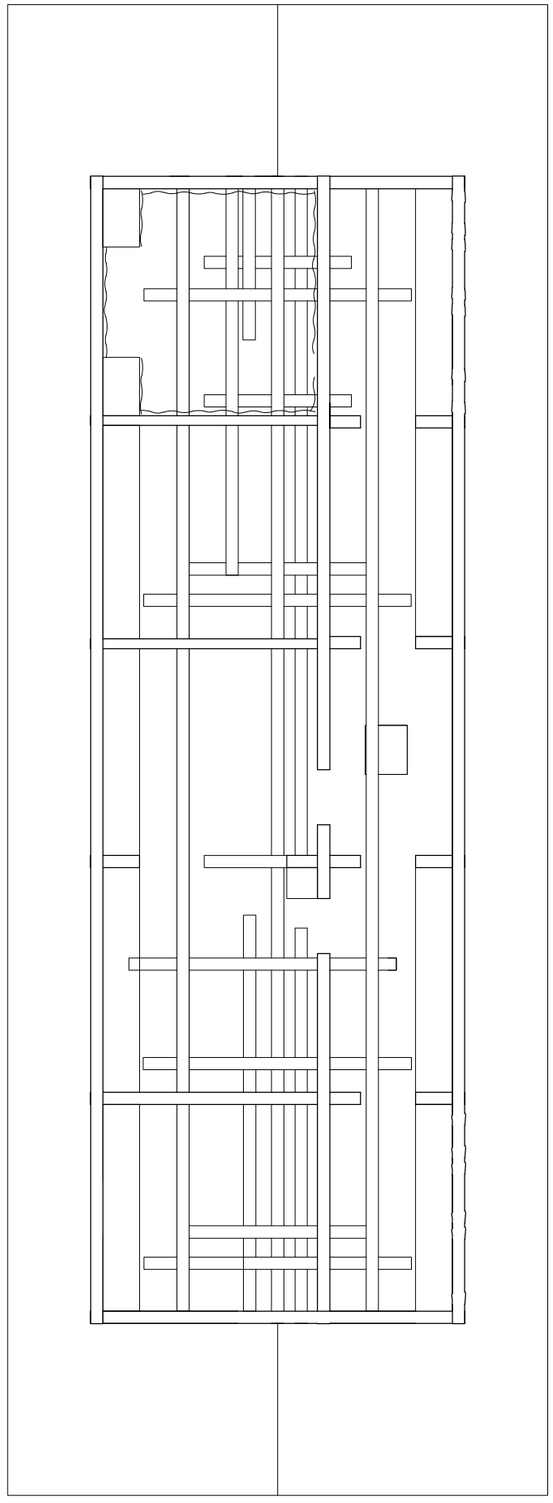
The third step, architectonic order, results in a seemingly finished building. The only thing missing is a site. What follows are drawings of a functioning and finished enveloping home.

The villa is entered through one of three entrances into a directional hallway which leads into squared rooms. Built in storage deepens the envelope, which is form-generative in the design.

As indicated on the gable facade on the following pages, there is something unusual happening in the top half of the volume of the villa. Traditional ridges which carry the roof of a log house are multiplied and spread throughout the space and in both orthogonal directions.

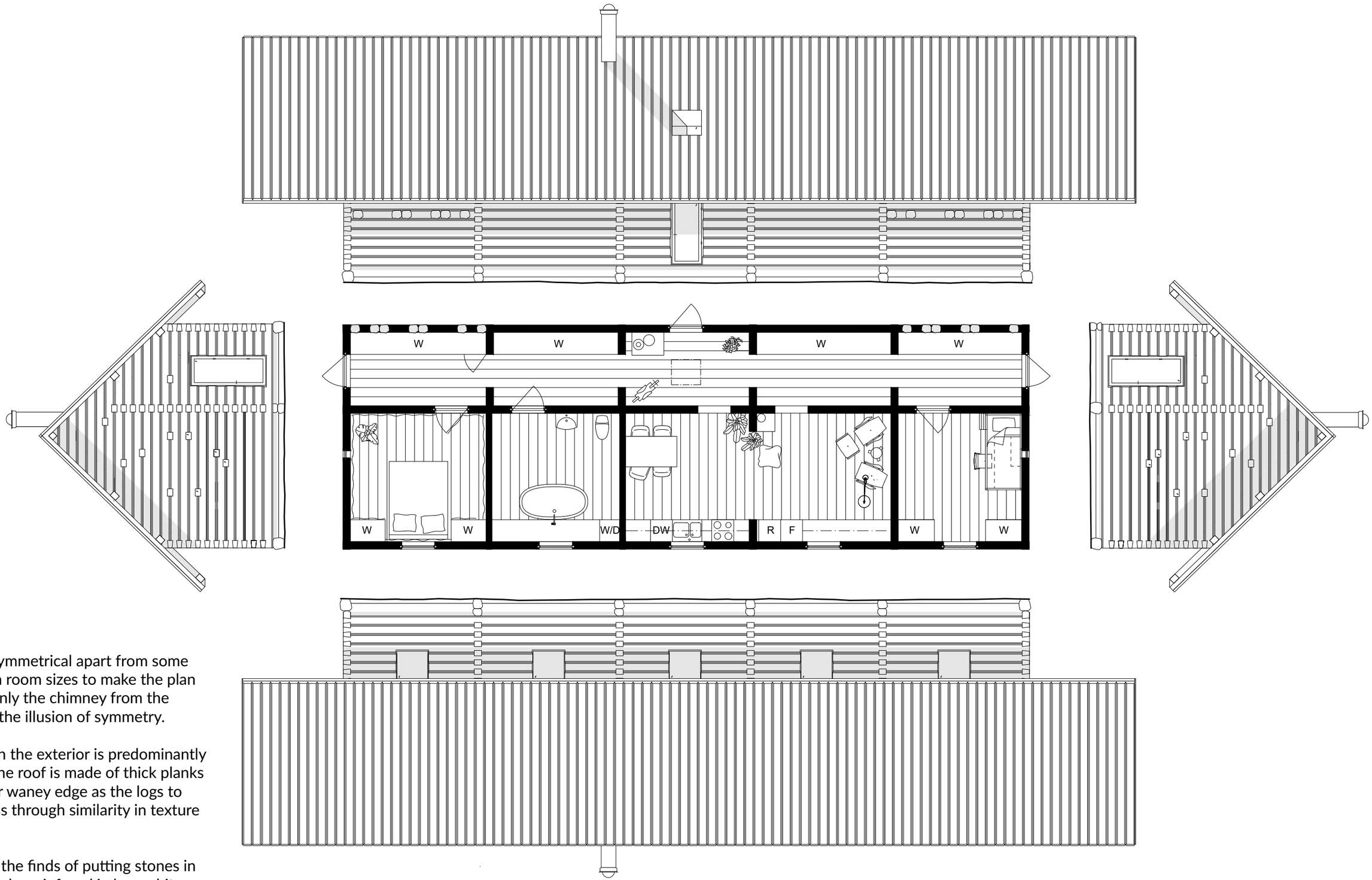
This follows the architectural idea by covering the visitor like the branches of a tree, similar to Olgiati's Pearling site (see pp. 20-21) but horizontally. Additionally, it offers a strong spatial experience and the Sensemaking understanding of being underneath something. On a practical note, the ridges offer places to hang interior pieces and decor.





Left PLAN 1:100 (A4). Right PLAN ROOF 1:100 (A4).

1 2 **3** 4

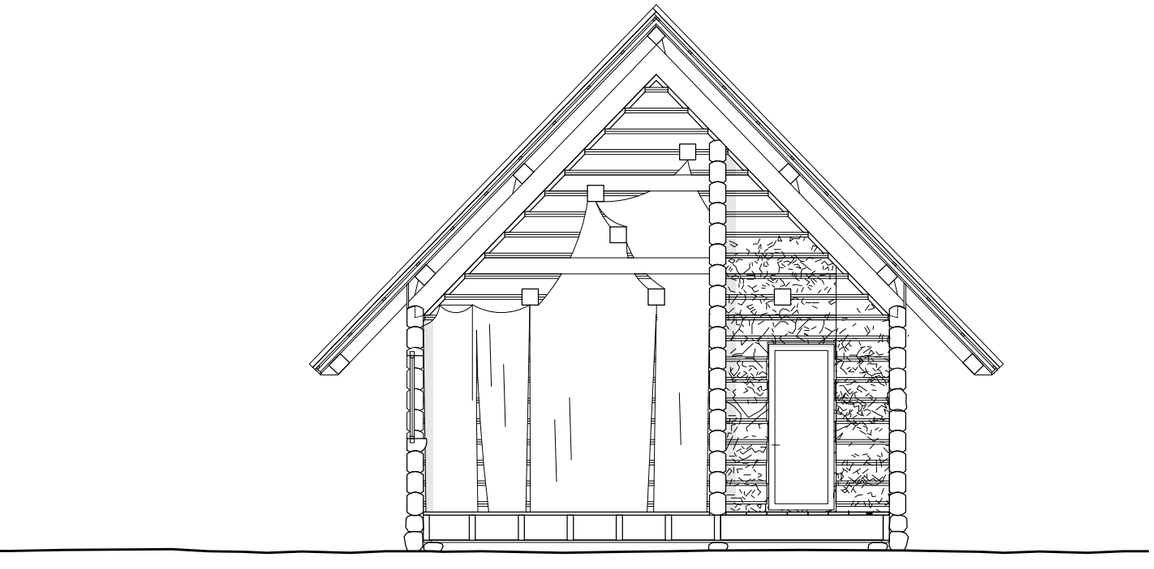


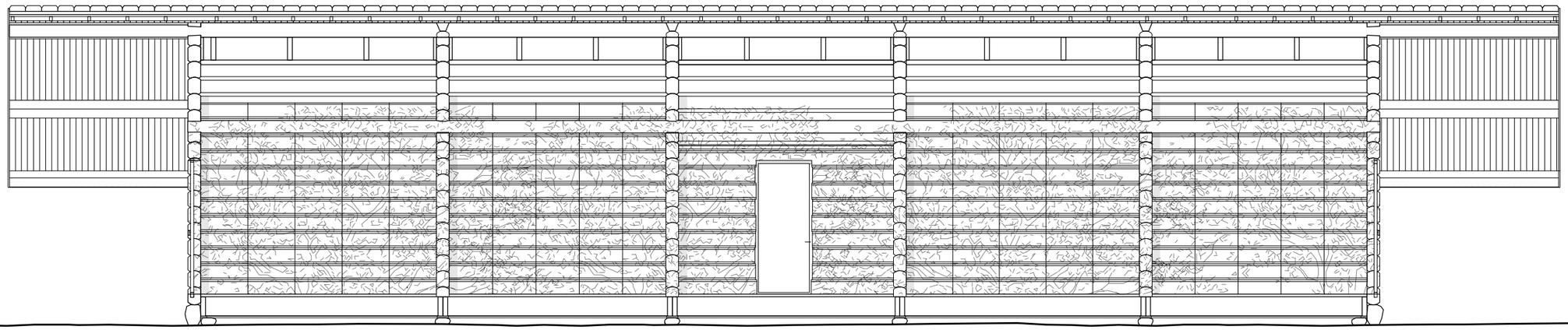
The building is symmetrical apart from some small variation in room sizes to make the plan more feasible. Only the chimney from the fireplace breaks the illusion of symmetry.

The materiality in the exterior is predominantly timbered logs. The roof is made of thick planks cut with a similar waney edge as the logs to increase Oneness through similarity in texture and shadows.

The villa follows the finds of putting stones in an unusual place: here infused in logs a bit up on one of the facades. As with traditional log houses, there is a significant step up to get into the home, which increases the feeling of a spatial break as one moves into the room.

ELEVATIONS & PLAN 1:100 (A4).



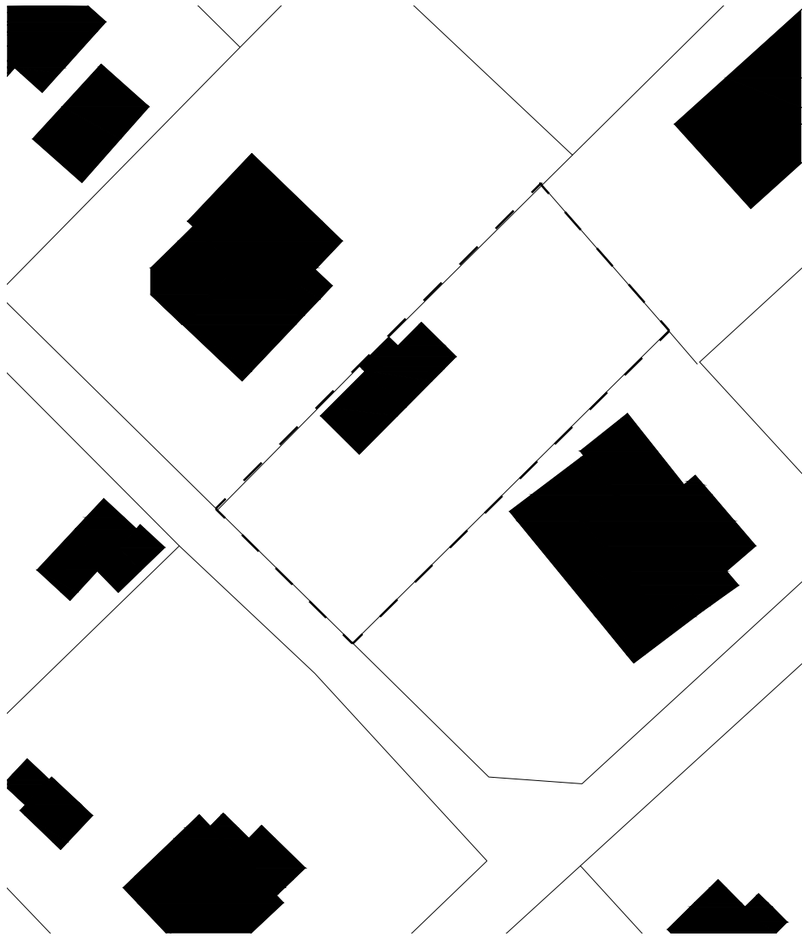


In contemporary practice, the need for furniture and built-in storage challenges the concept of Oneness. In the directional hallway of the villa, this is dealt with by making the wardrobes out of planks cut with a similar, although not completely identical waney edge as the logs. The aim is to create a surface that is visually tied to the envelope without pretending to be something that it is not.

The entire room of the hallway is covered in a painting-like pattern, correlating to a find from the site visit at Vallby open air museum (see p. 40). This ties the room together visually and investigates the possibility of transforming values which are not architectonic, such as artistic or historical ones depending on the motif, into an architectonic attribute, thus making it architectonic. It also adds a Sensemaking element as visitors try to conceptualize what they see.

In the bedroom shown in section B-B, the walls are covered in fabric. This too relates to a critical exploration of Oneness and what an architectonic attribute is. If one does not only hang curtains by the window, but throughout the entire room, does it not become part of the skin of the space and thus architectonic? Additionally, Oneness increases as more of the space is covered with the fabric.

Top: SECTION B-B 1:75 (A4). Bottom: SECTION A-A 1:75 (A4).

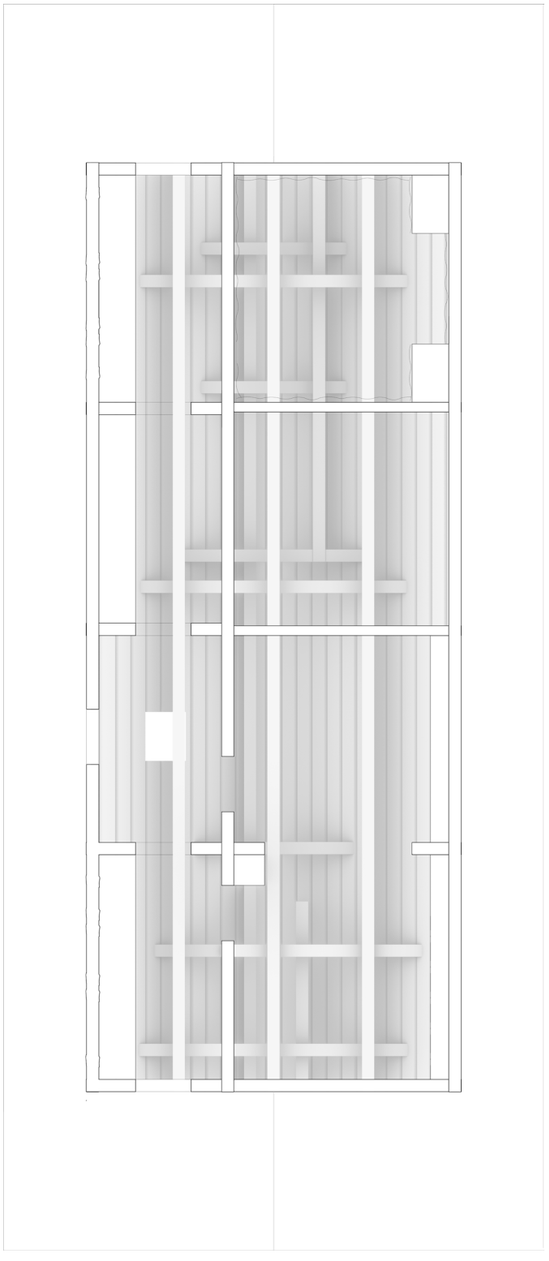


SITUATION PLAN 1:500 (A4).

The last step of the workflow is the context adaptation. The site used in this project is Gråvidegatan 15, located in a residential area in Toltorpsdalen, Möndal. The site is currently for sale as half of the original plot is cut off and sold as an individual lot. There is an existing dilapidated building on site that will be demolished as the new building takes its place.

PLAN 1:100 (A4) .

The plan has been mirrored but remains the same as in the previous step of the workflow, apart from having decreased one room in length to fit the size of the plot.



PLAN ROOF 1:100 (A4) .

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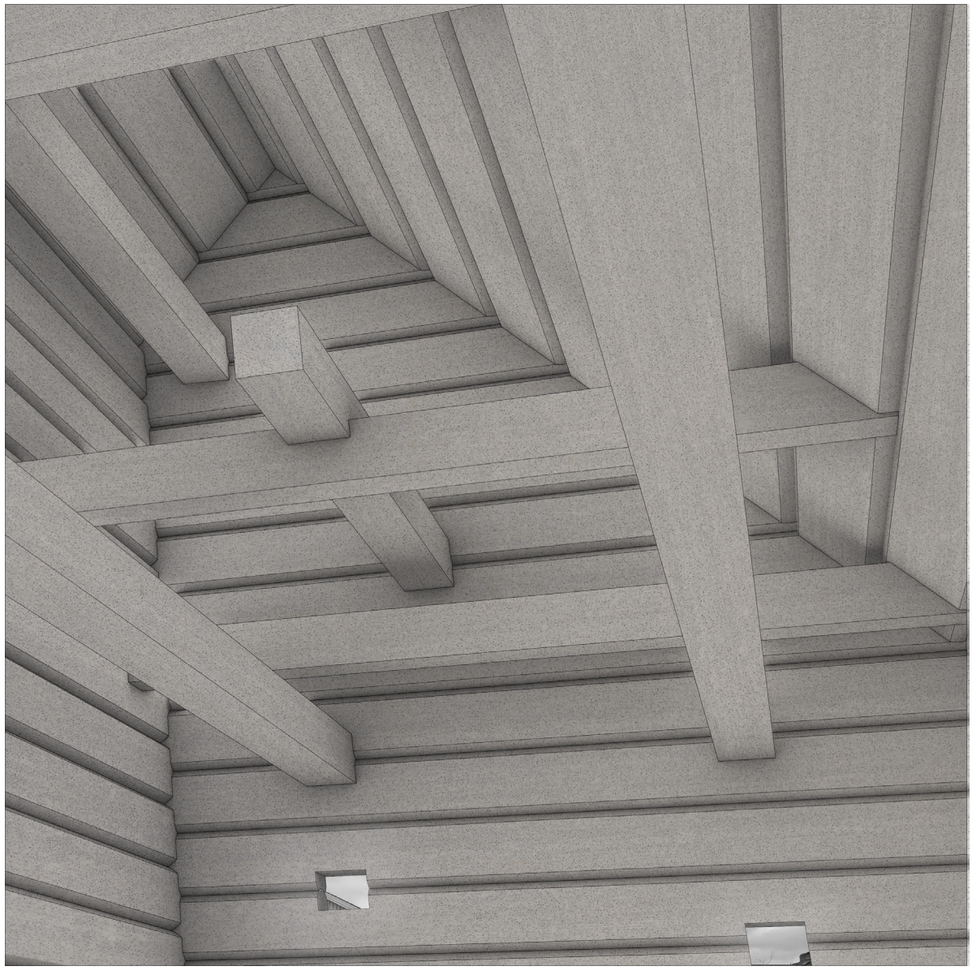
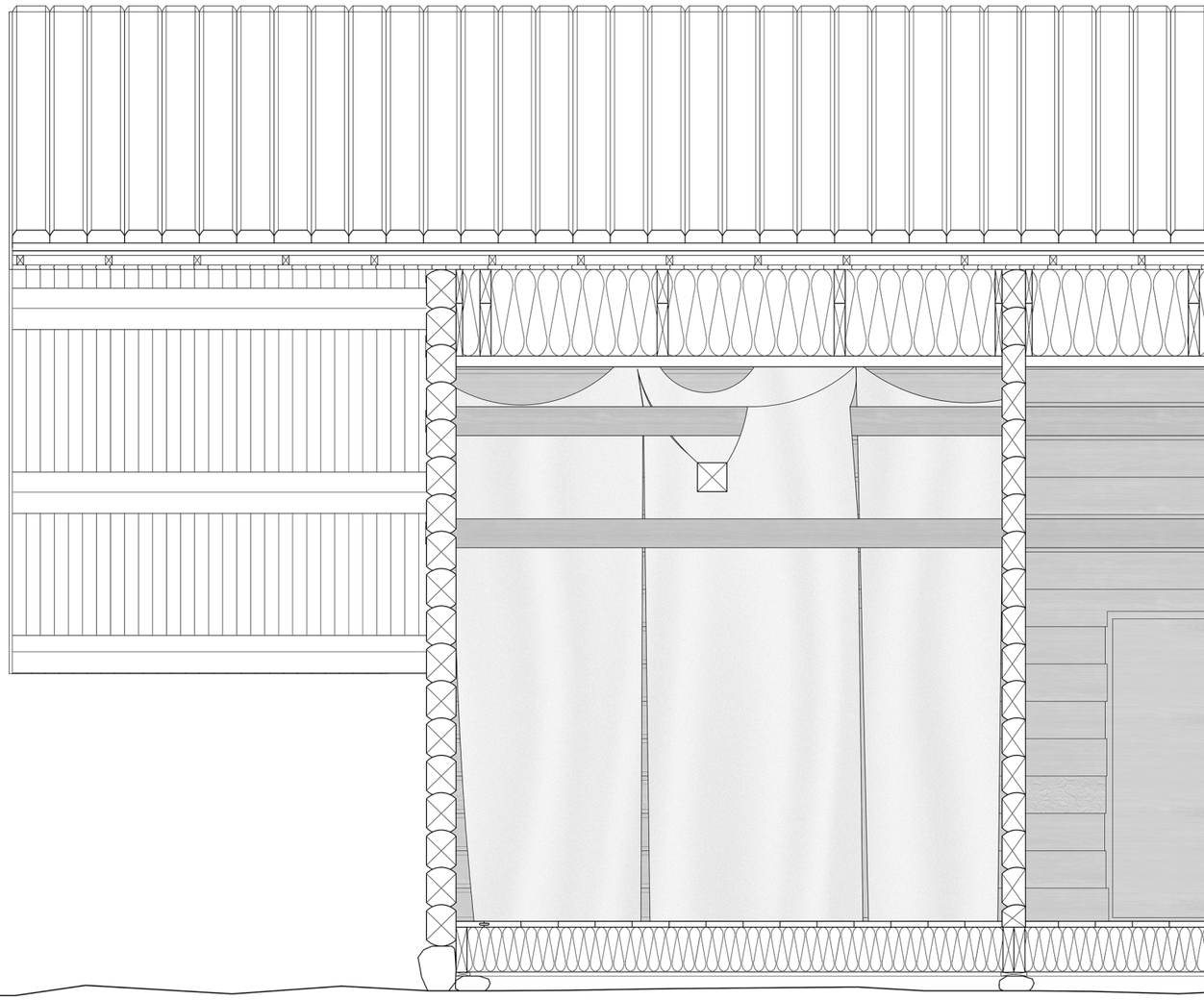


INTERIOR VIEW ROOF.

Section C-C shows the fabric of the bedroom, and a glimpse of the cut of the logs in the bathroom. Unlike the rest of the house, it is done according to the southern log house tradition: with no waney edge. This showcases how the same material offers differences in texture and, in complete opposite to the strive to make the wardrobes in the hallway blend into the envelope, a variation can be made while still operating in a Oneness. It is also suitable in the wet climate of the bathroom.

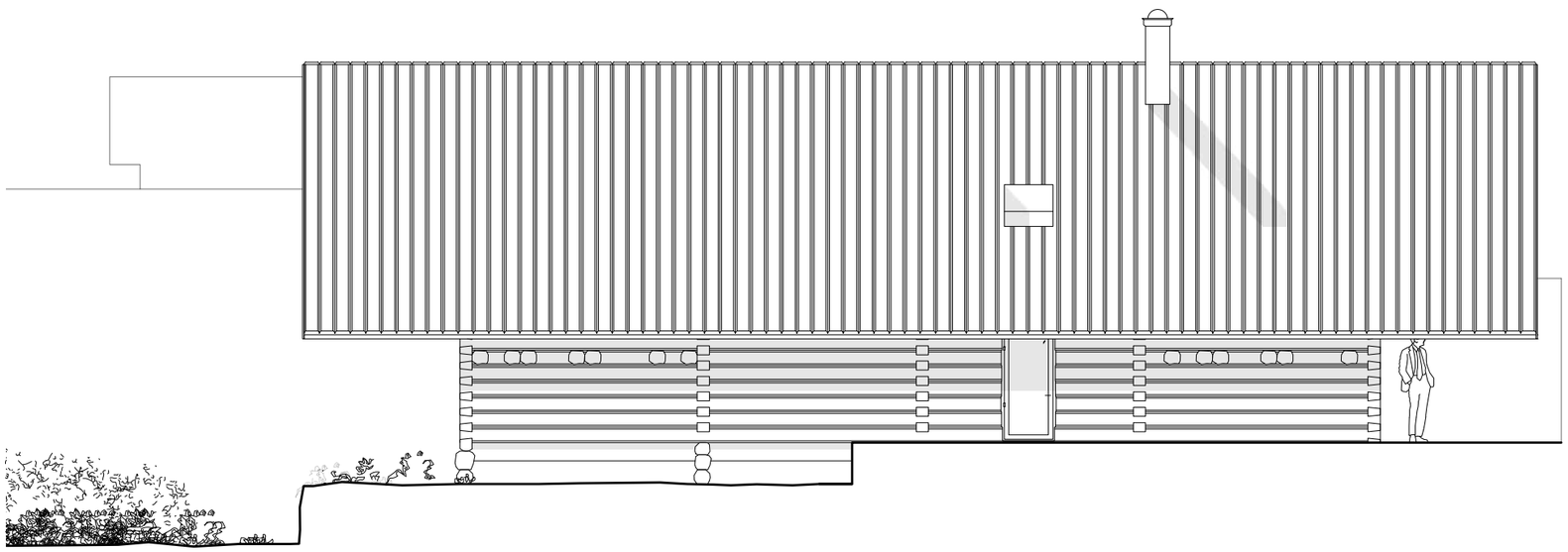
SOUTHEAST ELEVATION 1:100 (A4).

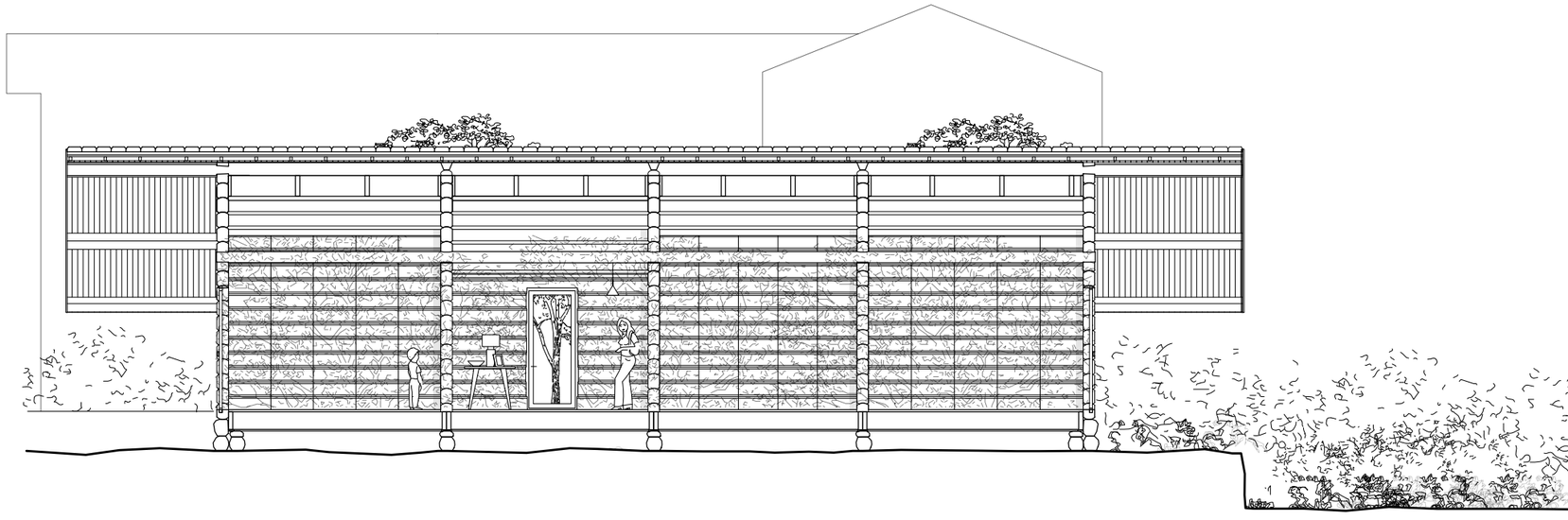


DETAIL SECTION C-C 1:40 (A4).

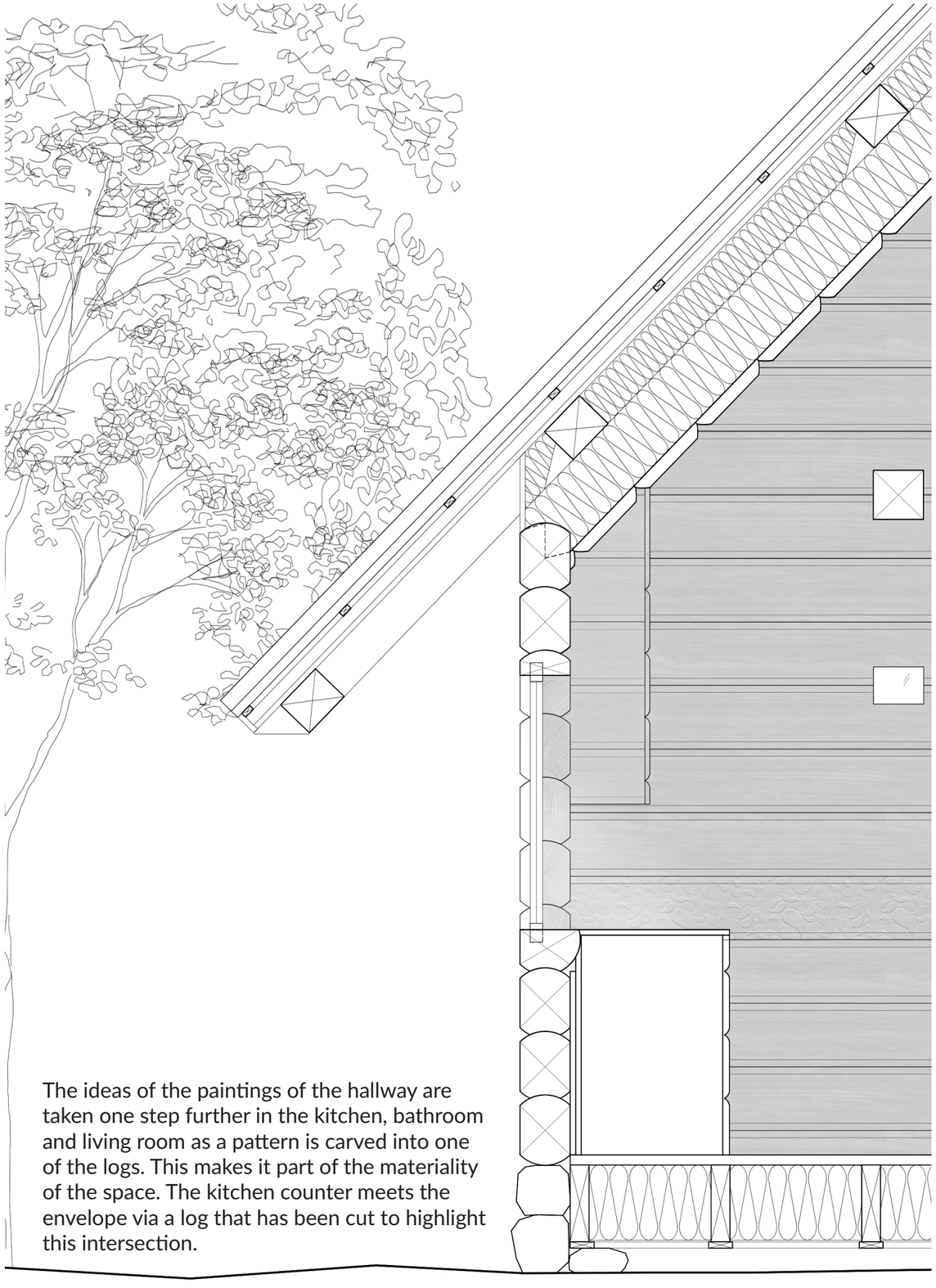
The eaves of the villa, which were made prominent to correspond to the enveloping architectural idea, are tightened to align with the edge of the garden. The height of the foundation of the log house becomes useful when adapting to the already existing elevation of the ground.

1 2 3 **4**





Top: NORTHWEST ELEVATION 1:100 (A4). Bottom: SECTION A-A 1:100 (A4).



The ideas of the paintings of the hallway are taken one step further in the kitchen, bathroom and living room as a pattern is carved into one of the logs. This makes it part of the materiality of the space. The kitchen counter meets the envelope via a log that has been cut to highlight this intersection.

Left: DETAIL SECTION D-D 1:20 (A4). Right: ELEVATION CUT-OUT 1:40 (A4).

Left: INTERIOR VIEW HALLWAY. Right: CUT-OUT MODEL 1:5.

DISCUSSION & CONCLUSION

DISCUSSION

This thesis began with an interest in why architecture needs theory. Do architects write to inspire others, to justify their work, to gain influence in the architectural discourse or to understand architect's unique contribution to the world? After concluding the thesis, I wonder if there is an answer to that question other than that theory holds the capacity to enrich architecture in *multiple* ways. The log house I designed as the result of this master's thesis would certainly look different had it not been created under the influence of an architectural theory. Working from the starting point of theoretical principles pushed me out of my comfort zone as a designer of architecture, inspiring me to employ my creativity in a manner different than that which I am used to. Additionally, the work made me understand Olgiati's own architecture in a different light than before: as an exploration of what architecture can be in its own right.

As stated in the introductory chapter of this thesis (see p. 24), Olgiati and Breitschmid present the philosophical argument that architecture exists and offers shelter in both physical and metaphysical dimensions: as shelter from the elements and space for the self within existence. They claim that architectonic value originates from spaces that offer Sensemaking possibilities, i.e. that engage people's imagination as they try to contextualize their Experiences of space. In other words, the bodily senses are fundamental in our understanding and construction of our selves. I agree with such a statement, and even if one does not, it is a testament to the importance of architecture to humankind. And as architects, we can control this vital part of human life and need to take responsibility of that accordingly, no matter our ideology or background.

The methodology centred around a workflow identified in *Non-Referential Architecture* (Breitschmid & Olgiati, 2019). This ensured that the result was a product of working non-referentially. Prior to conducting the workflow, an inventory was created through a site visit, case studies and a model study, as well as a first attempt of an architectural idea to gather knowledge on how to operate in these fields as an architect. As both non-referentiality and log houses are new fields within architecture for me, the inventory played a vital role in enabling the work and understanding its conditions.

Some of the non-referential attributes of the resulting design of the thesis directly relates to the project references studied in the case studies. In Pearling site, Olgiati uses openings in the roof to activate this tone-setting element. The villa, being the design result of this thesis, also uses openings and their corresponding light to activate the space, both in its walls through the small openings in the gable facades and in a skylight in the hallway. The openings draw attention to the form-generative envelope, centred to its architectural idea of 'an enveloping home', similarly to Pearling site, which architectural idea is manifested in the roof. Another similarity to Olgiati's Pearling site is how its visitors move through a forest of columns, an Experience of space with a Sensemaking aspect as it provokes reflections of the metaphysical kind. In the villa, the ridges which constitutes the top volume of the home, utilizes the same means but flips it horizontally: instead of walking through the tree trunks of a forest you stand underneath the branches of its trees.

Case studies of Olgiati's Pearling site and House in Laax (pp. 20-23) features sketches instead of photographs. This was done to capture small details of the buildings that goes unnoticed when viewing a photograph, despite that media being more informative in other ways. Overall, these case studies where a way to start translating abstract theory into concrete reality.

The following case studies of Fabel Arkitektur's log house architecture introduced the basics of the contemporary practice of working with log houses. As the theory of non-referentiality argues, studying project references formally is a way to learn about built space. By comparing the villa and the log houses by Fabel, it becomes evident how the seven principles exploit the ordering and tectonics of the logs in its manifestation. When used in concrete, as

evidenced by Olgiati, it can result in interesting geometric, but still abstract and monotonous creative solutions. The principles, such as Newness and Contradiction, pushed the use of the logs until the villa had a playful expression which is arguably more expressive than the concrete given its tectonic nature.

A question that arose mid-way through the thesis is knowing when to stop pushing the design towards this very playful and experimental aesthetic. When is the log house non-sensical enough to be an example of non-referential architecture? The scope of this thesis does not allow for an extensive investigation of such nature even though it certainly is an interesting question for further research. As the research question of this thesis has centred around how to employ the seven principles of non-referential architecture in practice as an architect, the thesis has aimed at exemplifying multiple ways of using the principles in the building tradition of log houses. As such, it is well within the realm of reason to argue that the design is more non-sensical, or more non-referential, than it needs to be to qualify as a non-referential piece of architecture. Nevertheless, it offers multiple answers in different ways and multiple scales.

During the site visit, many important finds which became the foundation of the following model study, the first sketch of the architectural idea and finally the finished design, where introduced to the thesis. Some key findings where the distinct break in the Oneness of material in log houses in the traditional foundation of stones and how exchanging them with wood would increase Oneness and affect Newness through Contradiction. However, it was more interesting to the thesis to explore the likeness of stone and logs as different materials with similar attributes of being massive. This implies that they contribute to Oneness without being one and the same. A question that followed throughout the rest of the thesis was the possibility of creating Oneness in more creative ways than limiting oneself to one material. This resulted in a reading of the theory which makes it more accessible in contemporary practice were restricting oneself to one material is noticeably limiting.

Another important find from the site visit was the paintings on the walls of one of the buildings, in which historical information and stories has been made into an architectonic feature. Was this a tool in creating valuable material culture and merging other values into architectonic value? The same is true in thatching, where the passage of time are manifested physically by adding new layers of reed without removing the old.

These finds were sorted through the model study, where a collection of finds which would come to impact the design result began to form. Finally, the last exploration offered a first attempt of an architectural idea to understand how this fundamental step of the workflow works before conducting the entire process. It showed how the idea affects design decisions such as openings, materials and how a person interacts with the building.

The question posed in this thesis regards how architects can employ the seven principles of non-referential architecture in their practice. A subsequent obstacle is that contemporary building regulations, at least in Sweden, require built-in furniture and storage. Thus, there is a need to understand how to place such furniture in a log house and still abide by the concept of Oneness through making the entire space appear like a whole, a totality and preferably in one material. One way would of course be to make the furniture out of logs, and perhaps even tie them into the exterior walls with dovetail joints as with interior walls. However, this is both inefficient in relation to space and hinders any future remodelling or refurnishing. Thus, the villa explores two ways of doing this. The first is found both in the hallway and in the kitchen where wardrobes and kitchen respectively are covered with planks cut with a similar, although not completely identical waney edges as the logs. The reason for the difference is that there the material should not make itself out to be something that it is not: these are planks and not logs. However, the theory wishes to tie the materials together visually somehow, and this does that. It is similar to how Olgiati ties different material together by using a similar colour (see pp. 13). The same technique can be used on the roof where the thickness of logs would make the roof unnecessarily

heavy. In other worlds, one way of using the seven principles of non-referential architecture today is by tying the different materials and components together with visual markers, making them similar. This also answers the first question which arose during the site visit, pushing for a critical exploration on Oneness.

In regard to the same question, the thesis explores the concepts of Oneness and architectonic value by adding layers of skins into different rooms, pushing the limit of what is to be deemed architectonic versus extra-architectural. An example of this is the fabric covering the walls of the bedroom and the paintings in the hallway. Would it simply be one curtain or a framed painting it would be seen as interior pieces. By extending it to become part of the entire room, it becomes architectonic, and a way for architects to employ non-referentiality in their practice.

This brings us to the other question which arouse during the site visit, namely the investigation on the possibility of transforming values which are not architectonic, such as artistic or historical ones depending on the motif, into an architectonic attribute, thus making it architectonic. Architecture is Sensemaking through its manifestation of sensory knowledge in physical entities. Does this mean it is possible to make other knowledge part of the architectonic value by making them sensory in physical entities? By transforming knowledge and artistic values through patterns, paintings and carvings into an architectonic attribute that can carry architectonic value, architects of today can use the principles of non-referentiality to create value in the world that is less constricting that the theory might suggest at a first read.

A critical reading of the result of the thesis would highlight how it positions itself in a building tradition with similarities to Olgiati's architecture and how other local building traditions might not be able to deliver the same result as log houses did. Additionally, it seems problematic to use the word 'local' when so much of the workflow is done without a physical context. It is possible, and probably even likely that I, as the architect of this project had subconsciously set certain decisions up to aid my investigation. However, it is evident that the theory is able to say something valuable about at least some building traditions outside of the one practice by Olgiati and that indicates a relevance in the discourse on architecture making it worth exploring further.

The project itself ended up being something in between realism and experimentation. This proved to be a challenge in the thesis as multiple principles, particularly Newness, Contradiction and Sensemaking, pushed the design towards experimentation. Having positioned the research question within actual practice, it makes sense to create a project that achieves realism to inform practice. That being said, the foundation for achieving realism in the villa is not that far away, as the construction is though through and what is lacking is mainly precise measurements and calculation on material attributes. And the theory of non-referential architecture expresses how those final calculations should be left to other professions. Thus, it answers its research question while existing in between realism and experimentation.

This thesis started with an interest in the relationship between architecture, theory and philosophy. It ends with suggested answers to how practicing architects can employ a particular theory as a contribution to that intersection of discourses. The result of the thesis shows that architects of today can use the principles of non-referential architecture to be creative within local building traditions such as log houses. The log house created in the thesis became more playful and had more variation than had it been designed without the theory. By offering suggestions on how to expand the concept of Oneness in the theory, the limits of architectonic value in the built, and the unique tectonics of the log house building tradition, a local adaptation of the theory of non-referential architecture exemplifies how architects can operate non-referentially in Sweden today.

I conclude my master's thesis with the hope of having contributed to introducing others to the potentials of the intersection between architecture, theory and philosophy.

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F3: FABEL Arkitektur (n.d.) *Timmerhuset, dovetail joints* [Photograph]. FABEL Arkitektur. https://fabelarkitektur.se/

F4: FABEL Arkitektur (n.d.) *Stråtenbo, interior textures* [Photograph]. FABEL Arkitektur. https://fabelarkitektur.se/

F5: FABEL Arkitektur (n.d.) *Timmerhuset, exterior textures*[Photograph]. FABEL Arkitektur. https://fabelarkitektur.se/

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